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THE Journal OF THE Kansas Medical Society

JANUARY
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VOL. LXXIV
NO. 1

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To help you manage excessive psychic tension

Volume LXXIV, Number 1—January, 1973

The JOURNAL of the KANSAS MEDICAL SOCIETY

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Scientific ARTICLES

Alcoholism: Diagnosis and Treatment

The Physician's Role

DAVID H. KNOTT, M.D., Ph.D.,*
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ALTHOUGH the medical model of the disease concept of alcoholism is often difficult to appreciate, this concept has been strengthened legally, economically, and popularly. Recent court decisions have emphasized the acute pathophysiology, rather than the criminality of the intoxicated, withdrawing individual and have suggested medical-psychiatric rather than punitive approaches. Increased availability of public funds for treatment and an increasing willingness of insurance carriers to provide third-party coverage to programs delivering a quality health service to alcohol abusers are economic factors which are encouraging the extension and sophistication of care in this area. In addition, the lay public is beginning to strip the veneer of morality from alcohol dependency. While not completely understanding the "disease nature" of excessive ethanol ingestion, many persons do recognize that a complex interrelationship of social, psychological, and physiological factors are involved in the pathogenesis, diagnosis, treatment of and recovery from the disorder known as alcoholism. The physician should give serious consideration to dropping the "ic" and the "ism" from alcohol and to approaching alcohol dependency as a drug-abuse problem—this country's number-one form of drug dependency.

Utilizing the drug-abuse model, the physician must recognize that no patient with an alcohol-related problem presents for diagnosis and treatment on a strictly voluntary basis—rather patients are coerced into a therapeutic setting. Major coercive factors include:

(a) Legal coercion—*e.g.,* driving while intoxicated, or some alcohol-related crime with the individual being referred by the courts or by an attorney.

(b) The anticipated or real loss of an important part of the patient's value system—*e.g.,* when alcohol threatens loss of spouse, job, family.

(c) Fear of the abstinence syndrome.

(d) Medical disorders related to alcohol abuse.

It is not difficult to use these factors to persuade patients to enter into treatment; however, these same factors must also be used to hold the patient in a treatment program.

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The alcohol-abusing patient may encounter the physician in three distinct phases—Acute Phase, Subacute Phase, Chronic Phase. Although medical-psychiatric responsibilities vary with each phase, the practicing physician's management is an essential ingredient to a comprehensive rehabilitative approach to the patient.

Acute Phase

Acute abstinence syndrome is one of the most frequent forms of coercion motivating patients to seek help. It is the most serious of drug withdrawal problems and frequently results directly or indirectly in death. There are many cases in which an unsuspected acute abstinence syndrome complicates the management of other disorders, such as emergency or elective surgery. Although there is a spectrum of withdrawal states from alcohol, the syndrome of the delirium tremens variety is the most common. It is unpredictably progressive and is characterized by:

Stage I: Psychomotor agitation, autonomic hyperactivity (tachycardia, hypertension, hyperhidrosis), anorexia, insomnia.

Stage II: Hallucinations—auditory, visual, tactile, or a combination of these; rarely olfactory. The hallucinatory experience is usually a frightening one and usually there is partial or total amnesia of the details.

Stage III: Delusions, disorientation, delirium, may be intermittent in nature, usually followed by amnesia.

Stage IV: Seizure activity.

When the syndrome progresses from Stage I to Stage IV, the diagnosis of classical delirium tremens (DTs) can be made. However, patients are presenting in Stages I and II with increasing frequency; intervention at those points aborts progression of this serious and often fatal syndrome.

There are less frequent variants of acute abstinence which should be approached from a differential diagnostic standpoint. Differential diagnosis consists of: (1) Presence of, extent of, or even absence of agitation and signs of autonomic hyperactivity. In some instances patients may be hallucinating or delusional with little or no agitation; (2) degree of orientation. Patient can be hallucinating or is delusional, but his observing ego is intact and he is perfectly oriented in all spheres; (3) presence or absence of amnesia of the toxic psychotic episode; (4) type of hallucinations, *e.g.*, some variants are predominantly auditory.

The term DTs is a meaningless diagnostic wastebasket, and labels such as impending or incipient DTs should be abandoned. Describe the progression of signs and symptoms of the abstinence syndrome, and treat accordingly.

Treatment

Sedation

Since the alcohol-dependent patient is suffering from sedativism, care must be exercised in the use of psychotropics during the acute phase. Important considerations in selecting psychotropics are:

Sedative effects—avoid excessive sedation.

Effect on cardiovascular function, *e.g.*, postural hypotension or arrhythmias.

Potential hepatotoxicity.

Additive or synergistic effects when given to a patient in acute withdrawal with a blood alcohol level.

Margin of safety with increasing doses of the drug. The effect of ethanol ingestion on the hepatic microsomal drug metabolizing system causes a cross tolerance to many psychotropics; thus, larger than usual doses of a drug are required to achieve a satisfactory clinical effect.

Tendency of the drug to produce physical dependency. Secondary dependency and withdrawal should be avoided.

Pharmacologic amelioration rather than total abrogation of the agitation in addition to preventing the progression of the withdrawal syndrome should be the therapeutic goals.

In the authors' experience, hydroxyzine is an important component of total medical management. Hydroxyzine (100 mg given intramuscularly or orally every 30 to 60 minutes as needed for 3 or 4 doses) will decrease psychomotor agitation, but will not cause oversedation. If the patient presents with a seizure history, diazepam 10 mg intramuscularly every 4 to 6 hours affords sedation and an anticonvulsant effect. If the abstinence syndrome is a variant other than that of the delirium tremens variety —*e.g.*, alcoholic hallucinosis or alcohol paranoid state, the phenothiazines are often more effective than the minor tranquilizers (*e.g.*, chlorpromazine, 50-100 mg intramuscularly every 4 to 6 hours). Regardless of the psychopharmacologic agent chosen, it is important to remember that its use alone will seldom effect a smooth and rapid detoxification.

Fluid and Electrolyte Metabolism

The diuretic effect of alcohol by suppression of release of the antidiuretic hormone occurs only as long as the blood alcohol level is increasing; thereafter an antidiuresis ensues. During this diuretic-antidiuretic phase there is a net retention of sodium, potassium and chloride, and an increased renal excretion of magnesium. An isosmotic expansion of the total body water (overhydration) is a frequent finding. There is no dehydration per se unless one or a combination of the following occurs, *e.g.*, protracted vomiting, diarrhea, overt malnutrition, or infection

supervenes. Contrary to the empiric use of intravenous fluids in the acute phase, administration of a diuretic agent is often an effective adjunct. Electrolyte replacement is seldom necessary unless dehydration is a complicating factor. The hypokalemia sometimes seen during the acute phase is more often consequential to hyperventilation with a respiratory alkalosis than to a depletion of total body potassium. Some clinicians also favor the parenteral administration of magnesium sulfate in replacement doses (2 cc 50% magnesium sulfate IM q 4-6 h × 4 doses) during the acute phase. Although overhydration is isosmotic (solute + water retention) alcohol does cause an electrolyte shift in the body. Intracellular accumulation of sodium has been experimentally and clinically observed in the central nervous system (CNS), cardiac muscle, skeletal muscle, and erythrocytes. Theoretically, this alteration could reduce the transcellular membrane potential and increase the excitability of the tissue. Diphenylhydantoin 400-600 mg daily in divided doses affects cell-membrane physiology by decreasing intracellular sodium. Although diphenylhydantoin in these doses will not prevent seizures occurring during the initial 72 hours of the acute phase, it does tend to restore to normal the intracellular sodium concentrations of affected tissues and thus reverses alcohol-induced electrolyte shift.

Carbohydrate Metabolism

Hypoglycemia has been associated with the acute withdrawal syndrome primarily in those suffering from malnutrition. It is important to recognize the lability of blood glucose during the withdrawal period. Alcohol partially depletes hepatic glycogen stores and impairs gluconeogenesis. Initially during withdrawal, the blood glucose may be normal or elevated as a result of the glycogenolytic effect of elevated catecholamine levels. As the patient becomes more calm and as catecholamine levels decrease, the blood glucose can fall rapidly without the protective effect of adequate glycogen stores in the liver. This can effect increased agitation and may precipitate seizure activity. The intravenous administration of 50 cc of 50 per cent glucose will temporarily stabilize the blood glucose and will also cause an osmotic diuresis. Often this diuretic effect is all that is necessary to correct the overhydration. In addition to glucose, the oral or parenteral use of thiamine (50-100 mg for 2 to 3 doses) may be indicated to facilitate carbohydrate metabolism and to correct any possible neurophysiologic abnormalities resulting from a functional thiamine deficiency.

Convulsions

If a patient presents a history of seizures or clinically apparent seizure activity, parenteral diazepam or phenobarbital is effective in controlling and preventing convulsions.

Infection

Because alcohol exerts a suppressive effect on leukopoiesis, decreases leukocytic reserve and viability and can temporarily decrease gamma globulin production, the patient may be particularly susceptible to infection (especially respiratory tract infections). The indiscreet use of antibiotics is discouraged, but early diagnosis and aggressive management is necessary for rapid and effective detoxification.

Gastritis, pancreatitis, peripheral neuropathy, anemia, associated trauma, fractures, and subdural hematoma are not uncommon in patients in the acute phase—management ensures a medically holistic approach.

Reducing morbidity of the acute phase requires total medical management involving a skillful, well-informed staff which can offer medical help in an understanding manner.

Subacute Phase

A growing number of alcohol-dependent persons are seen by the practicing physician who are not in the acute phase but are suffering from physical or emotional problems or both, directly or indirectly related to alcohol abuse. Alcohol is seldom implicated because the physician does not take an adequate drinking history and because the patient is often unwilling to discuss his drinking pattern.

The toxicity of alcohol causes or complicates a number of common symptoms and signs which prompt patients to seek the aid of a physician. Frequent concomitants and consequences of alcohol abuse are: Gastrointestinal (GI) complaints such as anorexia, nausea, vomiting, dysphagia, and heartburn. Other common complaints, chronic cough, heart flutters and palpitations, headache, and edema all may result from many causes. Some physical signs accompanying this symptomatology include CNS hyperirritability, systolic and diastolic hypertension, cardiac arrhythmias (especially sinus tachycardia and ventricular premature systoles), and abdominal findings of tender or nontender hepatomegaly.

Knowledge of the physiologic toxicity of ethanol, and ability to take a good drinking history and a careful examination of the systems involved allow the physician to diagnostically relate alcohol use to the presenting medical disorders.

To this approach is added an appreciation of the important considerations of the physiologic effects of alcohol which include the following.

Cardiovascular Function

Hypertensive vascular disease is often misdiagnosed in the subacute phase. Although no positive correlation between alcohol abuse and bona fide hypertensive vascular disease has been demonstrated, elevation of the systolic and diastolic blood pressure

with labile hypertension frequently occurs for several days to three or four weeks following a prolonged drinking episode. Unless pressure increases reach symptomatic levels, antihypertensive medication should be withheld. Autonomic hyperactivity, sodium retention, or increased anxiety are all factors which contribute to the clinically apparent, albeit temporary, hypertensive process.

While an abnormal electrocardiogram is not pathognomonic for alcohol-induced damage, a positive drinking history coupled with consistent EKG changes such as a persistent tachycardia, atrial or ventricular premature systoles, cloven or spinous T-waves, an increased P-R interval, or the T-P phenomenon consisting of a blending of the T and P waves are presumptive evidence that some form of cardiomyopathy secondary to alcohol abuse could be present. Blood pressure and electrophysiologic aberrations are signs of an overall impairment of cardiac function caused by alcohol and characterized by decreased cardiac contractility, decreased coronary blood flow and, importantly, an impaired response to superimposed stress, *e.g.,* trauma, surgery, infection, and exercise. Awareness of the cardiac toxicity of ethanol will equip the physician to diagnose earlier forms of alcoholic cardiomyopathy and to prevent not only a progressive cardiac disease but also prevent a more serious form of alcohol dependency.

Hepatic Function

The liver is diagnostically important since it is extremely sensitive to the effects of alcohol.

The most common form of damage is an acute fatty liver, which is presumably due to an increased synthesis and decreased release of lipids in the liver. Although cirrhosis does occur in an alcoholic population, the etiology in this regard is still enigmatic. Recent evidence implicates the combination of alcohol plus other factors, especially viral hepatitis. It is generally accepted that acute fatty liver does not represent a precirrhotic lesion. Unfortunately, many physicians, in a valiant attempt to obviate further drinking, mistakenly tell the patient with altered liver function tests that he has cirrhosis. This does not prevent the progression of alcohol dependency and often falsely increases the incidence of cirrhosis in an alcohol-abusing population.

Tests useful in defining the type and severity of alcohol-induced liver disease include: bromsulphalein (BSP) retention, serum enzymes, serum glutamic oxalo-acetic-acid-transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), serum isocitric dehydrogenase (SICD), and the electrophoretic pattern of serum proteins. We have found the SICD to be particularly meaningful because:

(a) SICD can be elevated with hepatic inflammation only. Actual necrosis of the parenchyma does not have to occur.

(b) SICD is the first enzyme to rise and the last to return to normal in the progression and resolution of liver damage.

(c) An increase in SICD is more specific for liver disease than that involving SGOT or SGPT.

Use of the electrophoretic pattern in ascertaining chronic (and even cirrhotic) processes is encouraged. Typical liver function panel seen with the acute fatty liver is the following:

	Acute Fatty Liver	*Normal*
BSP	10-15% retention at 45 min.	0-5%
SGOT	40-90 μ/ml	5-35
SGPT	30-50 μ/ml	5-40
SICD	200-600 μ/ml	30-180

Electrophoretic pattern—decrease in gamma globulin

This acute process will resolve after two to three weeks of abstinence. Treatment consists of adequate diet and serial observation. In many cases acute fatty liver is asymptomatic, and early diagnosis can aid the physician in approaching the patient's alcohol-abuse problem.

Reactive Hypoglycemia

Carbohydrate Metabolism

As a drug, alcohol depletes hepatic glycogen stores and impairs gluconeogenesis. The glucostatic mechanism is compromised resulting in a very labile blood sugar. Glucose tolerance tests in the subacute phase frequently reveal a hypoglycemic diathesis that could be termed reactive or spontaneous hypoglycemia. Glucagon tolerance tests on the same individuals suggest that a decreased hepatic glycogen depot is partially responsible. This hypoglycemia can effect or exacerbate autonomic hyperactivity resulting in signs and symptoms of anxiety-depression. It responds to a high protein, low carbohydrate diet with restrictions such as abstinence from alcohol, caffeine containing beverages, and any preparation with a high, immediately available glucose content. Adherence to proper diet in addition to an improved emotional adjustment usually ameliorates the tendency toward hypoglycemia.

In contrast to this hypoglycemic syndrome, many patients in the subacute phase manifest a diabetic-type glucose-tolerance curve. Without dietary change, this curve generally returns to normal after three to four weeks of abstinence if it was alcohol-induced. Care must be taken not to diagnose diabetes mellitus during this phase since oral hypoglycemic agents and carbohydrate restriction are not only unnecessary but detrimental.

Although glucose metabolism is variably affected by alcohol, both hypo- and hyperglycemia can exist in the subacute phase. Implication of alcohol in

these abnormalities will obviate misdiagnosis and will allow proper medical management.

Hyperuricemia is often misdiagnosed and overtreated. Lactic acidemia, which can occur with chronic alcohol abuse, prevents renal secretion of uric acid. The resulting increase in serum uric acid (7-12 mg %) is usually asymptomatic and returns to normal after two to three weeks abstinence. Uricosuric agents are seldom indicated.

Hematopoietic Function

Anemia consequent to folate or B_{12} deficiency does occur and usually responds to proper treatment. The normochromic normocytic anemia which frequently occurs as a result of suppression of erythropoiesis by alcohol requires no treatment.

An increased susceptibility to infection is also a clinical problem in the subacute phase. Recurrent or chronic respiratory- or urinary-tract infections are not uncommon and could result in part from the effect of alcohol on the immune mechanism (*e.g.*, depressed leukocytic production and function and decreased gamma globulin production). An infectious diathesis can be due to many processes, but its presence should suggest the possibility of alcohol abuse.

Gastrointestinal Function

Many patients present with signs and symptoms of gastrointestinal dysfunction. Alcohol, as a drug, can directly and indirectly cause esophagitis, gastritis, and pancreatitis. Chronic symptomatology can be a clue to alcohol abuse and possibly to alcohol dependency.

Emotional Problems

Although alcohol dependency results in part from a pathological premorbid personality, ethanol itself can effect the somatic components of anxiety-depression. The effect of alcohol on glucose metabolism produces a labile blood sugar which can cause agitation, depression, lethargy, and apathy. Its effect on electrolyte metabolism to increase intracellular sodium certainly contributes to and possibly causes signs and symptoms of a depressive illness.

Although many individuals allegedly use alcohol as a soporific, it causes sleep and dream deprivation which can exacerbate anxiety and depression. Thus the anxious-depressed patient who is seeking relief could be alcohol-dependent, with alcohol contributing significantly to his complaints.

Medical disorders which occur in the subacute phase have multiple etiologies, including alcohol abuse. Therefore, it is imperative that the practitioner elicit an accurate drinking history. Important considerations include:

An assumption that at least 70 per cent of the adult population drinks on a regular basis.

The ability to obtain a valid history depends on the bias and drinking habits of the physician.

Pathophysiology should be objectively pointed out to the patient, but the physician must realize that he cannot scare an individual out of drinking (*e.g.*, telling patient he has or will develop cirrhosis).

Nonmoralizing questioning of the patient about the nature of his drinking. For example, establish the alcoholic beverage consumed, drinking frequency, and relationship to meals, the social climate in which alcohol ingestion most frequently occurs, the effect for which the patient drinks, and whether or not the patient is developing a tolerance to the drug. Ascertain if the patient has been taking drugs (such as tranquilizers and patent medicines) concomitantly, if there is evidence of inappropriate hostility while drinking, and whether or not the patient has said or done things while drinking that he cannot remember (blackouts). The questions should pinpoint the relative importance of alcohol in the patient's life.

If the physician emphasizes that social drinking is as much a diagnostic anathema as alcoholism, the patient is often more truthful in his responses. Drinking is functional in that everyone ingests alcohol because of its tranquilizing effects. Alcohol abuse, then, as a symptom of emotional maladjustment, complicated by the toxicity of the drug. There is often no distinct difference between social and alcoholic drinking.

In the overall approach, ethyl alcohol should be considered a drug by both physician and patient. The regular use of this drug creates the potential for its abuse.

Most patients in the subacute phase do not seek treatment for alcohol dependency per se. The physician occupies a critical position in his ability to diagnose alcohol abuse at an earlier stage by recognizing the toxicity of alcohol, by taking a good drinking history, and then by treating the abnormal drinking as well as the abnormal physiology.

Chronic Phase

This phase of treatment focuses on the emotional rehabilitation of the alcohol-abusing patient; it is crucial that the physician establishes the guidelines for a rehabilitation program. With few exceptions, patients are coerced into treatment and at the onset it is imperative to clearly define what can be lost if the abuser fails to follow through with treatment plans. The physician can prudently use coercion to initiate and maintain treatment in this phase by contacting and communicating treatment course and expectations to industries, social agencies, legal au-

thorities, family members, and to the patient. The greatest motivating factor, one which frequently determines the successful outcome of rehabilitation, is finding a significant area of the patient's life that can be lost by his continuing his alcohol abuse.

Coercive factors can be used to break through the patient's denial of any problem with alcohol. He will consciously and unconsciously use the mental mechanism of denial to avoid the anxiety engendered by the thought of changing, modifying, or giving up his pathological use of alcohol. Denial also allows the patient to avoid handling any other personal problems by hiding behind the facade of such platitudes as, "I am an alcoholic," or, "Alcohol is my only problem." Initially, a firm direct encounter which emphasizes the patient's dependence on alcohol and points out his inappropriate behavior patterns and maladaptive responses to stress is indicated.

A major characterological difficulty is dependence which expresses itself in one of two major ways:

A. The passive-dependent patient tenaciously holds on to the concept of being unable and unaware of how to change, yet, recognizes the destructiveness of his dependent behavior. This type of dependency demands immediate gratification of needs and does not tolerate changes which have uncertain outcome. He becomes hostile and dissatisfied easily in therapeutic situations due to the inability of the physician to satisfy and tolerate his passivity and dependence.

B. The counter-dependent individual rejects his underlying dependency and presents with the facade of, "I can do it by myself," and, "I don't need your help." He becomes inappropriately aggressive as a way of avoiding the threatening nature of his basic dependency needs.

The physician will be confronted by counter- and passive-dependent individuals and some alcohol-abusing patients demonstrate an admixture of both themes. It is necessary to point out the excessive passive- or counter-dependency needs and the mechanisms employed by the patient to perpetuate these relationships and behaviors. The physician will become a part of the alcohol-abusing patient's pattern to establish dependency relationships. Therapeutically, the practitioner must help the patient by encouraging him to take responsibility for decisions and to build self-awareness and individuality.

As the patient becomes more aware of his own identity and begins to develop a sense of autonomy, he frequently begins to express neurotic-type anxiety and depression. This is a crucial point in the therapeutic management in the chronic phase. As the somatic and psychic manifestations of anxiety and depression emerge, the need to seek immediate relief from them may cause a relapse and a return of his previous characterological difficulty or renewed alcohol abuse. Supportive and reeducational psychotherapy offers alternatives for handling the painfulness of this period and enables the patient to become more flexible, rather than regressing to his previous pathological level of functioning.

In dealing with the patient in the chronic phase, the most frequently encountered emotional pathology is a combination of anxiety and depression. A recent double-blind study was conducted among 120 patients who demonstrated emergence of symptoms of the anxiety-depression complex. The compounds compared were doxepin, amitriptyline and perphenazine combination, and placebo. Each patient was medicated three times daily, receiving either 25 mg doxepin, a combination of 25 mg amitriptyline and 2 mg perphenazine, or placebo. Evaluations were conducted over an eight-week experimental period.

The physiologic parameters of hematopoietic, liver, cardiovascular, and renal function were monitored during the eight-week experimental period to rule out any drug-induced exacerbation of pathophysiology.

Each patient was serially evaluated by the medical and therapy staff in regard to efficacy of treatment and drug-related side effects. A psychodiagnostic battery which included the Minnesota Multiphasic Personality Inventory (MMPI), Behavior Psychiatric Rating Scale (BPRS), and the Hamilton Rating Scale for Depression was administered prior to and during the experimental period. As can be noted in *Table 1*, the diagnostic profile was similar in patients of the three experimental groups.

Doxepin was significantly more effective than both amitriptyline-perphenazine combination ($p < 0.01$) and placebo ($p < 0.001$). In addition, doxepin appeared to have a more rapid onset of action. The total incidence and types of side effects were less in the patients treated with doxepin than in those given amitriptyline-perphenazine combination *(Table 4)*. There were no apparent drug-induced exacerbations of the initial pathophysiology of the patients in this study. We conclude that the adjunctive use of doxepin can be effective in the management of the anxious-depressive symptomatol-

TABLE 1

DIAGNOSTIC PROFILE

Diagnosis	*Patients Receiving* DOXEPIN	AMI-PER	PLACEBO
Mixed anxiety-depression	23	19	21
Depression	11	16	13
Anxiety	6	5	6
Total patients	40	40	40

TABLE 2

GLOBAL RATING OF CLINICAL CHANGE

Response	DOXEPIN	AMI-PER	PLACEBO
Marked improvement	10 (25.0%)	3 (7.5%)	0 (0.0%)
Moderate improvement	16 (40.0%)	12 (30.0%)	6 (15.0%)
Slight improvement	10 (25.0%)	12 (30.0%)	21 (52.5%)
No change	2 (5.0%)	8 (20.0%)	7 (17.5%)
Worse	2 (5.0%)	5 (12.5%)	6 (15.0%)
Total patients			
Patients Receiving	40 (100.0%)	40 (100.0%)	40 (100.0%)

ogy as the patient relates to a comprehensive rehabilitation program.

Four patients (3 in doxepin group and 1 in amitriptyline/perphenazine group) experienced seizures during the experimental period. Medication was withdrawn in accordance with standard procedure in this clinic and the patients were re-evaluated. In all cases, the seizure episode was not considered to be drug-related. In fact, statistically, the incidence of seizure in a chronic alcoholic population is usually higher than that noted in this study.

Short-term use of psychotropic agents is indicated in helping the patient through this period. The physician should emphasize that anxiolytic and antidepressant medication is adjunctive and will not solve problems. It is equally important to explain the difference between psychotropic drugs and alcohol, for the patient often expects to receive the intense somatic effect and psychic relief which he derived from alcohol. The side effects of psychotropic agents and their use and abuse should be clearly delineated.

Chemotherapy alone is insufficient in effecting recovery and needs to be individualized and of short-term use. If psychotherapeutic measures are not concomitantly employed, the physician frequently can be fostering a substitution addiction, *e.g.,* abuse of an anxiolytic agent for alcohol.

The use of chemical deterrent or disulfiram therapy is helpful in the chronic phase. Often the success of this therapy will depend on the physician's attitude and understanding of its proper use and adjunctive role in the overall management of the patient. A thorough explanation to the patient emphasizes that disulfiram provides insurance against impulsive recidivism of alcohol abuse by forcing him to find other alternatives for relief of symptoms, *i.e.,* changing his behavior and reactions, or suffer a drug reaction. The specific contraindications for disulfiram therapy are cardiovascular disease and the severely depressed, suicidal patient. Disulfiram reactions will respond to parenteral antihistamines.

The physician can play a central role in psychotherapeutic management by providing emotional support on a nonmoralistic, nonjudgmental basis. This may not solve the patient's everyday problems, but can help by pointing out alternative methods of behavior. Emotional re-education emphasizes that

TABLE 3

STATISTICAL EVALUATION

Rating Key	
Marked improvement	5.00
Moderate improvement	4.00
Slight improvement	3.00
No change	2.00
Worse	1.00

Treatment Group	*Mean ±*	*Stand. Error*
Doxepin	3.75 ±	.166
Ami-Per	3.00 ±	.187
Placebo	2.65 ±	.146

Significance (unpaired "t" test):

Doxepin vs. amitriptyline + perphenazine $p < 0.01$

Doxepin vs. placebo $p < 0.001$

TABLE 4

INCIDENCE OF POSSIBLE DRUG-RELATED SIDE EFFECTS

	Doxepin	*Ami-Per*	*Placebo*
Drowsiness	15	3	4
Blurred vision	0	4	0
Dry mouth	0	9	0
Hypotension	0	1	0
Tachycardia	2	0	1
Restlessness	0	3	2
Agitation	0	1	1
Dizziness	0	0	1
Nausea	0	0	2
Anorexia	0	1	0
Weakness	0	1	0

rehabilitation does not mean that stress and conflict will be removed; rather it is designed to change and modify the patient's abnormal reaction to normative emotions and experiences.

Therapy sessions can be conducted on an individual or group basis. Group therapy can employ encounter techniques where the patient's denial can be exposed and process interactions can be used to build confidence in interpersonal relationships. Encounter groups are useful in exploring alternative methods of behavior and help normalize the patient by sharing of problems with other group members. Group impact on the patient's intellectualizations and rationalizations is often more significant and meaningful than from someone who has never been there.

Didactic therapy, which emphasizes the pathophysiology and the toxic sequelae of alcohol abuse, aids in the patient's understanding of the interplay of psychic and somatic manifestations of his drug abuse. Alcoholics Anonymous may be useful in patient management. The physician is encouraged to work closely with AA not only in terms of recovering alcoholics, but also with Alanon, which helps the spouses of alcoholic patients gain insight into the problem, and Alateen, which offers aid to teenagers of alcohol-dependent families.

The physician should realize that abstinence from alcohol is not necessarily synonymous with recovery. He should look for other signs of improvement including:

a thorough understanding of alcohol dependency,
active participation in a rehabilitation program,
improvement in family and social relationships,
improvement in job performance,
longer periods of sobriety,
shorter drinking episodes.

Conclusion

The physician must be emotionally prepared to recognize that alcohol dependence is a relapsing phenomenon. Out of desperation and a lack of understanding, alcohol-abusing patients are lumped into one diagnostic and therapeutic generality of abysmal hopelessness. When treatment is individualized and the physician looks for and encourages improvement in many areas of the patient's functioning, a more optimistic attitude can be developed.

Acceptance of the responsibility for diagnosis and treatment lends credibility to the disease concept of alcoholism and will indeed make a definite impact on our number-one drug-abuse problem.

The alcohol-dependent patient should not be the forgotten addict.

25th Annual

MIDWEST CANCER CONFERENCE

For Physicians

"CONQUEST OF CANCER—THE TEAM APPROACH"

THURSDAY APRIL 5

Thursday Morning Session

9:15 a.m.—"Radiotherapy of Hodgkin's Disease" Luis Delclos, M.D.
9:45 a.m.—"Tracer Studies in the Diagnosis of Brain Tumor" Henry N. Wagner, M.D.
10:15 a.m.—"Soft Tissue Tumors" Gerald Fine, M.D.
11:00 a.m.—"Advances in Chemotherapy for Control of Malignant Diseases" Emil J. Freireich, M.D.
11:30 a.m.—Question and Answer Panel

Thursday Afternoon Session

1:15 p.m.—"Tracer Studies in Other Neoplasms" Henry N. Wagner, M.D.
1:45 p.m.—"Surgical Treatment of Carcinoma of the Thyroid" Bentley P. Colcock, M.D.
2:15 p.m.—"Diagnosis of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
3:00 p.m.—"Perfusion and the Treatment of Melanoma of the Extremities" Edward T. Krementz, M.D.
3:30 p.m.—Question and Answer Panel

FRIDAY APRIL 6

Friday Morning Session

9:15 a.m.—"Use of Cancer Chemotherapeutic Agents in Non-Neoplastic Diseases" Thomas C. Hall, M.D.
9:45 a.m.—"Treatment of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
10:15 a.m.—"Clinical Experiences with Immunotherapy of Melanoma" Edward T. Krementz, M.D.
11:00 a.m.—"Surgical Treatment of Carcinoma of the Colon" Bentley P. Colcock, M.D.
11:30 a.m.—Question and Answer Panel

Friday Afternoon Session

1:15 p.m.—"Supportive Therapy for the Intensively Treated Patient" Emil J. Freireich, M.D.
1:45 p.m.—"New Concepts in Early Detection of Cancer" Thomas C. Hall, M.D.
2:15 p.m.—"Radiotherapy of Gynecological Cancer" Luis Delclos, M.D.
3:00 p.m.—"Tumors of the Head and Neck" Gerald Fine, M.D.
3:30 p.m.—Question and Answer Panel

QUESTION AND ANSWER PANELS

Professional films shown from 8:00 a.m. to 9:00 a.m. each morning.

WICHITA, KANSAS CENTURY II CIVIC CENTER APRIL 5-6, 1973

The Medical and Scientific Committee of the Kansas Division of the American Cancer Society invites all physicians in the entire Midwest to attend a two-day graduate course on cancer. Free registration. 16 hours of A.A.F.P. credit.

Drug Abuse—

American Dilemma

MURDOCK HEAD, M.D., LL.B., D.D.S.,* *Airlie, Virginia*

OUR WORLD is full of drugs, many of which have profound therapeutic benefits. But as these statistics reveal, an increasingly large number of people are not willing to limit their drug taking to medically supervised programs. The majority of adult Americans take alcohol as a tension reliever or to facilitate social intercourse, and this same pattern often occurs in the case of other prescription and nonprescription drugs. Some wish to escape an unwelcome reality with heroin or barbiturates. Others desire the acute functioning associated with amphetamines. Still others, in particular the young, seek the pleasurable effects of hallucinogens or marijuana.

The basic philosophy which underlies our present efforts at drug control is that these self-induced effects are to be shunned. This view is based partly on a fear of actual physical damage caused by drugs, but primarily it is based on the belief that drugs damage society because they contribute to crime and alienation. This existing social policy toward nonmedical use of drugs has historical antecedents and explanations.

American opinion has always included some opposition to the nonmedical use of any drug, including alcohol and tobacco. From colonial times through this century, abstentionist outcries against alcohol and tobacco sporadically provoked prohibitory legislation. But despite these outcries, alcohol and tobacco use took deep root in American society, and the two drugs achieved social legitimacy.

In the case of narcotics, on the other hand, the response was practically unanimous—the nonmedical use of narcotics had to be stamped out. In 1900, only a handful of states regulated traffic in narcotic drugs—opium, morphine, heroin, and cocaine—even though, proportionately, more persons probably were addicted at that time than at any time since. This early 20th century addiction was to a large degree accidental, often stemming from overmedication, careless prescription practices, and hidden distribution of narcotic drugs in patent medicines. In the early years of this century, the possibility of accidental drug addiction was reduced to a large extent through self-regulation by the medical profession and pharmaceutical industry, stricter prescription practices by state governments, and regulation of labeling by the federal government in 1906. However, about this same time, attention within the law enforcement and medical communities was drawn to another use of narcotics—the pleasure or street use of these drugs. Society reacted to this narcotics problem by enacting criminal legislation, prohibiting the nonmedical production, distribution, or consumption of these drugs. Within a few years, every state had passed antinarcotics legislation, and in 1914 the federal government passed the Harrison Narcotics Act.

Ours is a drug-taking society—there is almost no one who would deny or question that fact. According to our best estimates, there are now 560,000 narcotics addicts in the United States. A recent national survey indicates that some 24 million Americans have tried marijuana at least once, and that at least 8.3 million are current users. An estimated 5 million persons intermittently use oral amphetamines without medical prescriptions, and an estimated two million people take barbiturates without medical need.

Marijuana smoking first became prominent on the American scene in the decade following the Harrison Act. The practice of smoking marijuana became common among the same population groups with whom opiate use was associated, and under these circumstances the policy response toward marijuana followed the narcotics pattern rather than the alcohol or tobacco pattern. In fact, marijuana was incorrectly classified as a narcotic drug in scientific literature and statutory provisions. In 1932, the National Conference of Commissioners on Uniform State Laws included an optional marijuana provision in the Uniform Narcotic Drug Act, and by 1937 every state had prohibited marijuana use. In late 1937, Congress adopted the Marijuana Tax Act, thus su-

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perimposing a federal prohibitory statute on the state statutes.

With this historical overview in mind, it is not surprising that the contemporary drug experience has been characterized by fear and confusion on the one hand and outrage and protest on the other. Two preliminary observations which are basic to this discussion must be made here. These observations were made by the Drug Abuse Survey Project of the Ford Foundation, and they dramatically point out why there is no such thing as a consensus or noncontroversial view of drug abuse:

> First, in many aspects of this field, important basic facts have not yet been determined and perhaps cannot be determined in the near future; conclusions, therefore, depend on fragmentary information and primarily on judgement. Because of the emotional and moral attitudes involved in drug issues, conclusions differ widely among even where facts exist, experts in the field often disagree on their meaning and significance.

It is quite apparent, then, that there is a serious lack of basic information about how drugs of abuse work, and their long-term effects on the body. There are several striking examples which make this point. Since World War II, there have been more than 3,000 technical papers on LSD, but scientists still do not know why it causes a psychoactive effect, or whether it causes birth defects, or whether the widely reported flashback effect has an organic basis. Morphine was first isolated in the early 1800s, and heroin was synthesized in the late 1800s. Among the things we still do not know about these drugs are the mechanisms by which tolerance develops, whether an addict can be stabilized on a given dose, the mechanism by which they alleviate pain, or even whether withdrawal can be psychologically as well as physically induced. And while it is common knowledge that many drug users use combinations of drugs, little is known about the effects of these combinations. For example, mixtures of heroin and cocaine, or of amphetamines and barbiturates, are often taken, but we do not know how they interact. In short, many of the most important questions remain unanswered.

Most of the basic research now being done on drugs of abuse is conducted by the National Institute of Mental Health Addiction Research Center (ARC) at Lexington, Kentucky, or is conducted or financed by grant or contract through the NIMH Division of Narcotic Addiction and Drug Abuse and the NIMH Division of Psychopharmacology.

ARC is an interdisciplinary group doing basic research on the physiological effects of a number of drugs of abuse. Incidentally, this is one of the few groups that has recently conducted any research with heroin. Its budget for fiscal 1972 was $1,771,000, but as is the case with most research programs, ARC will need far more personnel and far more funds in order to expand its activities broadly to include basic research on the cause and nature of all drug abuse and drug dependence.

NIMH funds for intramural and extramural research relating to drug abuse increased threefold in the years 1966-71, from $6.4 million to $18.3 million. Research has been conducted in the area of pharmacology, sociology, psychology, and many others. Funds are dispersed among the various drugs of abuse, not concentrated on one or two. About 50 grants have been made to specific individuals and institutions, the allocation of which is determined primarily by an advisory council of physical and social scientists that reviews all applications for funding and assigns them a priority ranking on the basis of scientific merit.

The Justice Department Bureau of Narcotics and Dangerous Drugs (BNDD) has engaged in some research in the past and still has some ongoing efforts on the abuse potential of drugs, the sociology of drug use, the characteristics of dealers, and the market structure of the drug traffic. The decision has recently been made, however, that BNDD research role should be limited to subjects related to law enforcement.

Other possible sources of funding for basic research on drugs of abuse are the states, universities, and the pharmaceutical industry. Thus far, the states have concentrated mostly on applied research, primarily in the area of treatment. The universities seldom have any significant source of funds for basic research other than the federal government, and the pharmaceutical industry concentrates primarily on product-oriented applied research. As a practical matter, therefore, most basic research depends on federal funds. Although it is true that these funds have increased significantly in the past few years, we must not be content that enough is being done. Interdisciplinary research must continue to be encouraged at all levels—in the states, universities, private organizations, and federal agencies. And above all, such research must not be limited by any current governmental policies; an open climate must be maintained for medical and social research and for reasonable experimentation.

One of the major reasons for the confusion and division within the drug abuse field and within the country in general has been a lack of effective leadership at both the governmental and nongovernmental levels. The role of effective leadership should include such functions as keeping the public informed about drug abuse and the latest drug research. It also should attempt to coordinate the many various approaches to drug abuse control. Further, it should

avoid eliciting emotional public reaction to isolated incidents and attempt to remove the drug problem from national politics.

We have recently witnessed a significant step in this direction with the issuing of the report of the National Commission on Marijuana and Drug Abuse. This 13-member, nonpartisan commission, after a year's study reported that it found no evidence that moderate use of marijuana is harmful, that it leads to the use of more dangerous drugs, or that it causes criminal behavior. The commission recommended the abolition of criminal penalties for personal, private possession and use of the drug, but said that criminal sanctions for trafficking should be retained and use of the drug discouraged. Few issues in this nation's history have been more divisive, more misunderstood, and more fraught with emotionalism than the marijuana phenomenon. Accordingly, the commission has performed an invaluable service by presenting the most comprehensive and authoritative information to date on the whole matter of marijuana. Legislation has been introduced in both the House and the Senate which embodies the major findings and recommendations of this commission.

Another important step toward establishing effective leadership in the area of drug abuse at the government level was the creation of the Special Action Office for Drug Abuse Prevention in the Executive Office of the President, to coordinate the antidrug programs scattered throughout the federal agencies. This legislation represented a major bipartisan effort to establish for the first time a comprehensive and consistent strategy against drug abuse at the federal level—a strategy which recognizes that education, law enforcement, treatment, and research are not independent, but interrelated approaches to the problem.

Other important measures which are being considered by the Congress include the authorization of methadone maintenance in the treatment of persons committed under the Narcotic Addict Rehabilitation Act, the authorization of care for narcotics addicts who are placed on probation or released on parole, the authorization of special programs aimed at promoting employment of rehabilitated addicts, requirement that the armed forces identify and provide treatment of drug dependent servicemen, and the suspension of foreign assistance to countries not cooperating in attempts to curb the illegal drug traffic to the United States. These measures, along with many others which are being considered, deal with a wide variety of aspects relating to the drug abuse problem. Congress has certainly proven itself willing to use every means at its disposal to try and solve this problem.

But despite whatever attempts are taken to control drug abuse, it still seems inevitable that all segments of society will continue to be exposed to a myriad of drugs in the future, and that we must learn to cope with this situation as part of everyday life. It is impossible at present to foresee exactly what adjustments in social attitudes and policies will be necessary, nor how these adjustments will be made. But there are many steps which we can and should be taking now. First, we must refine and clarify our thinking about drug abuse problems. We must consider whether imposing criminal sanctions on drug users causes more individual and social harm than benefit. For example, we must determine whether such criminal sanctions are causing widespread disrespect for drug laws and law in general, or whether they are deterring drug abusers from seeking necessary help. We must identify what factors in our society might be encouraging illegal drug use, and then we must find ways to discourage it. Education of young people against the reckless use of powerful substances that affect the mind must proceed in a free and open climate. As research discloses more about specific drugs, we must keep open minds and recognize that some might become candidates for limited legalization, in the pattern now used for alcohol. In other cases, disclosure of severe or permanent damage to the mind or the body would require that distribution controls remain under criminal penalties. The possibilities of civil commitment for appropriate treatment should be expanded, and voluntary treatment should be made more accessible and more flexible. More public funds must be devoted to current treatment efforts and to finding new treatment methods. Finally, law enforcement efforts should be directed mainly at illegal drug wholesalers. These efforts, it would seem, would have the wholehearted backing of a vast number of Americans, young and old alike.

We have made headway in our battle against drug abuse and, given the ongoing dedication of our citizens, we will continue to do so. But there is still a great deal of work to be done. Neither the availability nor the temptation to abuse drugs can be eliminated. Therefore, the fundamental objective of a modern drug abuse program must be to help the public learn to understand these drugs and how to cope with their use. This is why there is an urgent need for effective governmental leadership toward a reasoned approach to drug abuse in this country. Our success depends totally on an alert, informed, and concerned American public.

Methadone Programs

WILLIAM H. DOBBS, M.D.,* *Washington, D. C.*

I MAY puzzle you a bit by beginning my discussion with the following opinions. In order to understand methadone treatment and begin to evaluate its real worth, we must understand the phenomena of a number of major types of drug addiction and the treatment available for them. For example, it is important to know that medically the three most important addictions are (in order of importance): (1) Cigarette smoking; (2) alcoholism; and (3) true narcotic drug addiction. This is my ordering of the priorities for money, research, and treatment facilities.

Today, we are concentrating on understanding narcotic drug addiction and specifically will try to understand methadone treatment of heroin addiction. Several possible connections to problems with alcoholism and cigarette addiction will, however, be obvious to you even if not mentioned by me, and may at least stimulate some thinking on the subject.

Far History

If we reach back into history and try to lay our hands on the true story of the rise of narcotic addiction, we find the story vague, general, and lacking in the detailed connections which we would like to see. It is difficult to put together a detailed historical assessment, as the study of this part of our history has apparently not been too popular. However, we can start with some valid-appearing general maxims, best told by a botanist named Taylor.

Wherever and whenever human beings have lived, we have sought the assistance of the naturally available drugs from plants. Such assistance may be for various reasons, but is best described as a need to dull the cutting edge of many troubles of life, such as the need to endure extreme fatigue or the need to dull the sensory input about the depressing facts of life in a metropolitan ghetto.

In our discussion, we'll stick primarily with the US story unless otherwise noted. We shall go back to the Civil War and the first mass use of morphine for pain relief. At one time in this country after the Civil War, the number of estimated opium users was about 200,000. This usage was occurring mostly among middle and upper-class Caucasians (a majority were older women). The rate of usage expressed as a percent of population was at least 3 to 4 times that of the present estimated rate. Latest high estimates of heroin addiction range around 300,000 with a population of at least four times that of the 1870s.

There were no generally enforced restrictive laws until the Harrison Narcotic Act of 1914, followed by another strict measure passed in 1922. Although it appears that the Harrison Narcotic Act was a needed legal measure, a number of unfortunate developments arose due to the zeal of enforcement officers in its enforcement and court decisions. Beginning in 1915 and continuing into the 1930s, physicians were arrested and prosecuted in large numbers. One authority (Williams, 1938) estimated that by 1937, 25,000 physicians had been arrested, 3,000 of whom served prison sentences on narcotic charges, and about 20,000 required to pay large fines. As a result of these prosecutions and the court's strict interpretation of the physicians' role in treatment of addicts, the treatment of addicts by physicians outside of specially designated hospitals and wards became a virtual impossibility. As a re-

The general history of narcotic addiction and its treatment is briefly reviewed. A more detailed history of the development of methadone treatment programs is presented with an attempt to analyze some of the problems caused by insufficient hard data research collection and analysis. The rapid spread of methadone treatment programs based on the assumption of adequate research brings us face to face with the hard facts now coming forward, *i.e.*, the lack of sufficient careful research on pregnant addicts led to the erroneous conclusions that effects on the newborn were either minimal or nonexistent.

The present state of methadone treatment is analyzed and probable future trends discussed, including the growing number of suggestions that heroin maintenance will have to be explored again for some patients.

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Presented at the 113th annual meeting of the Kansas Medical Society, May 9, 1972, Salina.

sult, in view of reports of large numbers of addicts beginning to turn to petty crime to support their habits, public panic ensued. Also, it was at this point in history that traffic in narcotic drugs began a shift to inner-city minority areas, previously unaffected. Largely because of these problems, about 44 public clinics were established between 1919 and 1923. These clinics, hastily conceived and just as hastily closed, did little in the long run to advance our knowledge. The problem about them in historical retrospect is that so little scientific information was involved either in their opening or their closing. An excellent review of what little is known about them is contained in a pamphlet prepared by the Council on Mental Health of the AMA in 1963.

Historically, there remain some other loose ends. By the time of World War II, most narcotic addiction had become centered in the big city minority areas. A drastic decline in addiction is said to have occurred by the end of World War II because of major interruption of illegal transport worldwide. However, the number of heroin addicts has been steadily rising since then. More recently, there appears to have been a marked increase in narcotic addiction in some middle class suburbs. This latter increase appears to be statistically related to an even larger increase in nonnarcotic drug addiction and the use of marijuana.

We shall leave this section by raising several important, unanswered questions that seem most related to our primary goal today, *i.e.*, understanding the methadone treatment.

Why and how did drug addiction phenomenon shift from a middle- and upperclass, mostly female Caucasian group to an inner-city minority mostly male group? How and why did it become heavily involved with crime? Does the fact that the prohibition of alcohol and heroin occurred at about the same time historically have any relevance in answering the first questions? Finally, how do we explain the fact that the prohibition of alcohol was repealed, but the prohibition of heroin was not?

Recent History—Methadone

In 1963, Dole and Nyswander first began their experimental treatment of heroin addicts with methadone maintenance. Methadone had been used for some years in detoxification of heroin addicts, after its discovery in Germany during World War II as a synthetic analgesic.

Basically, their theory of treatment as first expressed and later modified involved three main theories: (1) Most heroin addicts were primarily addicts because of metabolic reasons; (2) they would become responsible, self-supporting, non-heroin using noncriminal, if given a substance that blockaded the metabolic pathway of heroin; (3) methadone successfully blockaded metabolic effects of heroin.

With carefully selected patients, the initial results emphasized three main indices of patient improvement on methadone maintenance: (1) Improved work performance; (2) decreased criminal behavior; (3) marked decrease in heroin usage proceeding eventually to almost a 100 per cent decrease. Their initial program has gradually expanded and is associated with several other similar New York City programs, so that about 3,300 patients have been admitted since 1963, and about 80 per cent of these are said to be still in treatment. The primary goal of the Dole-Nyswander approach is lifetime maintenance along with social rehabilitation.

Beginning in 1968 and 1969, many other programs around the country developed until now there are about 300 programs in 220 cities, involving about 50,000 patients. However, many of the programs developed recently are much more complex than simple maintenance programs and frequently include outpatient detoxification with methadone as an alternative.

There has also been an increase in many other kinds of programs treating narcotic addiction, notably therapeutic community oriented abstinence approaches. These latter tend to be used more and more (when available) for the younger, less seriously addicted addicts. We will not try to deal here with the details of these latter programs.

Current Status of Methadone Treatment

We shall go back to the basic Dole-Nyswander theories and treatment criteria. Concerning theories, the following is my weighing of the present evidence: (1) The metabolic theory of addiction is now adhered to by a minority of competent investigators, most holding to a complex social-psychological-physiological causation; (2) even Dole himself now admits that his blockade theory had no substance. To quote *Medical World News* of March 17, 1972: "Dr. Dole concedes that the effect he's talking about is cross-tolerance. 'We really chose the vivid term "blockade" in the early days to help counter the criticism that we were merely switching addicts from one addictive substance to another,' he says." (3) It follows, then, that any gradual self-improvement of addicts is due to the single substitution of one narcotic for another. However, it is now clear that the patients in treatment under this program have always had significant access to counseling and job-finding assistance. This program is not called by the usual names, but shows up in the per-patient cost mostly as research assistants. Also, most program chiefs, including Dr. Dole, now emphasize the necessity of psychological and vocational assistance for most patients.

What about the three major criteria for success? (1) Improvement in job status is a reasonable criterion, but many programs have had much less impressive success statistics; (2) most serious investigators would ignore any claims of success for decrease in heroin use based on unobserved collection of urine samples. It appears that published reports from Dole-Nyswander studies are based on unobserved urine samples. In fact, one has trouble finding a reasonably detailed report of urine analyses; (3) crime decrease has been based mostly on patient self-reports plus evidences of arrest before and after treatment. It is now not at all certain that a decreased arrest rate can be attributed to methadone. Whether it is evidence of decreased criminal activity per se is now also subject to question. The whole subject of the relationship of heroin addiction to crime is not nearly as clear as it first appeared. However, it is an important problem, as fear of crime seems to be behind most of the extreme push to get large, poorly controlled methadone treatment programs underway.

Some Current Concerns With Methadone

Illegal traffic in methadone itself has become a major problem, forcing many programs to screen take-home privileges much more carefully, and institute other stringent controls.

Fatal and near-fatal overdose in nontolerant individuals, particularly children, has become a serious problem. Younger addicts with early and mild addictions to heroin apparently pose as much—if not more—of a serious threat to themselves from methadone overdose than from heroin overdose. The current death rate from methadone overdose in D. C. is as high as the heroin overdose rate. No one claims to fully understand the latter development.

Preexisting alcoholic tendencies appear to be seriously aggravated in a number of methadone maintenance patients.

There is a growing number of programs oriented to a long-term goal of abstinence after a period of temporary methadone maintenance. However, no solid evidence exists yet that the long-term abstinence following methadone has been achieved by significant numbers of patients. There are hopeful signs, however, and this type of treatment approach is probably one of the most hopeful methadone approaches.

Side effects of methadone in maintenance doses are generally more severe and prolonged than first thought. It is now clear, for example, that a significant number of babies born to methadone maintenance mothers do have serious and sometimes prolonged withdrawal reactions. This area was sadly lacking in hard research data until very recently. Now, most programs are taking a cautious approach with pregnant mothers, keeping doses as low as practical before birth.

Dosage for maintenance is in dispute, but the best evidence now indicates that about one-half (50 mg) of the average amount (100 mg) recommended by Dole-Nyswander works as well as the larger dose. The lower dosage has significant advantages also for abstinence-oriented programs. Most of the annoying and serious side effects are dose-related and obviously less in lower dose programs. The risk of illegal diversion is obviously lessened.

Primary methadone addiction is increasing. It is not clear yet how much of this is due directly to the ease of illegal diversion of program methadone. It might also be that methadone is now high-status psychologically. It is also effective orally and maintains its oral effectiveness in contrast to heroin. This might make it much more desirable as a drug of choice in individuals who for cosmetic or other reasons don't want to use needles. Methadone does give a satisfactory high effect orally as long as doses are being increased, or for various reasons are irregular. There is some evidence that some long-term heroin addicts cannot distinguish between methadone given by intravenous injection and heroin. In fact, we have preliminary evidence suggesting that some street bags of heroin now contain methadone rather than heroin. The meaning of the latter is not entirely clear, but it obviously could be related to the rising overdose death rate from methadone.

The extreme desire of some political figures to claim success in crime control makes evaluation of any general effect on crime in some methadone programs difficult, if not impossible to assess.

The high retention in program statistics (80%) reported by Dole-Nyswander and others are not at all universal. One major factor is becoming clearer—most pilot programs operating on a waiting list and selection basis similar to Dole-Nyswander have similar statistics. However, those programs which operate on a walk-in basis, taking all, have generally much less favorable statistics. It appears that if all of the addicts in a typical minority group inner-city area could be offered methadone treatment, probably no more than 25 to 50 per cent will bother to come in at all, and the long-term dropout rate in those who do will be in the range of 50 per cent. Assuming that all patients retained in the program are successfully rehabilitated, the highest success rate anticipated is estimated to be between 12 and 25 per cent of the total addict group.

The gradual emergence of less satisfactory statistics from methadone maintenance than first hoped for has led to some agitation for heroin maintenance for the hard-core heroin user. This possibility is sufficiently complex to warrant a major research study

(Continued on page 17)

Narcotic Antagonist

Sublingual Injection in Acute Heroin Overdose

RICHARD T. RAPPOLT, SR., M.D.,* *San Francisco, Calif.*

SINCE the growing, cultivating, and preparation of opium has been previously described on the original hard-back-and-front tablet by the Sumerians in 7000 BC, and since half of Ulysses' crew went over the hill permanently in the land of the lotus eaters, and since currently a lot of money is to be made in the streets with heroin (diacetyl-morphine—Smack, Skag, Stuff) and elsewhere with dl-methadylacetate (methadone) and Tang, I will limit this article to the immediate treatment of opioid type overdoses in junkies and other subjects, so that they may be saved for all the various special interest groups including myself.

Overdoses from heroin and other opiates or surrogates are quite common on the eastern seaboard, especially in New York City, where the O.D. artists snuff themselves out to the tune of greater than 1,000 or more narcotics-related deaths a year, while in the city and county of San Francisco (though the junkie population is overrepresented by socially dislocated New Yorkers) there are fewer than 60 narcotics-related deaths a year. The major reason for this disparity is not only the less oppressive milieu of the west coast, but also the grade of heroin in the bay area which runs around 5 per cent in either brown or white, while the heroin in New York City is mostly all white and well over 10 per cent.

Heroin and other opioid substances have specific antidotes which very few addicts have even heard of. Nalline (nalorphine HCl) and Narcan (naloxone HCl) are generally the most available antagonists[1] for such opium derivatives, surrogates, and fellow travelers as morphine, opium, Numorphan (blue meenies), Dilaudid, Percodan (housewife's heroin), paregoric, methadone (these patients should be held at least 72 hours due to the long acting nature of methadone; also the decay time for Nalline and Narcan on the bodies' receptor sites is less than 5 hours), codeine (methylmorphine; addiction per se is rare, Darvon (propoxyphene HCl), Demerol (meperdine). For Talwin (pentazocine), O.D.s use Narcan exclusively.

Any unconscious young male or female (or just about anybody) may be presumed to have O.D.'d on heroin or any opioid substance, especially if they have old and recent tracks on their arms, are cyanotic, in frothing pulmonary edema, pinpoint pupils (but remember, even with Parathion-Malathion intoxications pupils dilate during exitus); frequently one or all of these may be lacking.

Sublingual injection of Nalline (or Narcan) has been previously alluded to, though for some unknown reason some medical practitioners have found this about as appealing as washing their hands between patients.[2] ACHTUNG! this is my method, having done it personally in an emergency room setting in a series of over 50 patients with no deaths (naturally, the DOAs go directly to the coroner). Of these, two patients had no perceptible heartbeat on a less than 10-second auscultation.

With a suspected (just suspected is enough) O.D. of an opioid substance, the immediate injection of 10 mg of Nalline (or two of the 0.4 amps of Narcan) deep intramuscularly, sublingually, under and into the base of the tongue (don't bother looking for a vein in a junkie) may be just lifesaving. Then, and only then, start suction, maintain airway (with assisted ventilation, though infrequently indicated), get the patient in a lateral sims position, and then look for a patent vein or artery (femoral) for another injection, this time intravenously, of the 10 mg Nalline (or 0.8 mg Narcan).[3] If within 15 minutes there is no patient reaction (arousal, emesis, chills, cold diaphoresis, deep yawns, and requests for narcotics—in short, cold turkey) no harm has been done. I repeat, no harm has been done.

Though the respiratory depression may be reversed, many of the symptoms of pulmonary edema may persist for as long as three days. If during the hold anything resembling seizure-like activity occurs, you probably have a patient crossed-hooked on barbiturates, or another rule-out diagnosis of Grand Mal. This is in some part due to the adulterants (though Osler has described morphine asthma over 70 years ago and we have noted same with plain propoxyphene),[4] *i.e.*, lactose, maltose, cocaine, amphetamines, barbiturates, quinine, mannita, in short, anything that is white, bitter, and will hopefully dissolve in hot water and mix with heroin, plus Escherichia coli, Streptococcus faecalis, P. falcipar-

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* Presented at the 113th annual meeting of the Kansas Medical Society, May 9, 1972, Salina.

CODAC

Community Organization for Drug Abuse Control

GEORGE E. STAVROS, M.D.,* *Phoenix, Arizona*

WERE ANY OF YOU as ignorant as I was some time ago, when a third-grader was brought into my office in convulsions? Convulsions he had gotten while sniffing glue! Or were you as ignorant as I, when I was called to the emergency ward the next day to see a boy who had run his car into a tree—he had two fractures, not too unusual until I found out he had run into the tree when high on marijuana. Maybe I should have begun to see the problem when several of our high school students were admitted to the hospital with serum hepatitis, or when I admitted a girl from one of our regular families to the State Hospital with psychotic breakdown because she went on a trip, a trip with LSD acid, a trip from which she would never return.

This was all a couple of years ago and yes, I finally awakened along with other physicians of Phoenix, Arizona. You see, we had a drug problem staring us right in the eye, and it took us some time to wake up to the fact that it was present. So we then said, "why?" Why are the young people doing this dread thing to themselves, why are they killing themselves? In the past two years, we have come up with a few answers to these and many more questions, and I would like to spend some time telling you of our findings.

We surveyed the medical society with its 1,000 population plus the 350 DOs, and found out we really didn't know much about the drug scene. We next surveyed the greater Phoenix area of about 1.2 million and found out that we just didn't have any big thing started to help our widespread epidemic-size drug problem.

So we started from scratch. We met with the medical society and presented some former users to them. Questions and answers were attempted and a certain feeling came from that original meeting. We found a general wanting for anything we could or would do, but also found that the actual number of people willing to help in the medical community was very limited. But a few with ideas and a willingness to work hard and diligently for quite some time proved to be all that it took to get the ball rolling.

Thus CODAC—Community Organization for Drug Abuse—was started. At first it wasn't nearly so easy as it might sound. We found out that one of the big requisites for any drug abuse control was to have support and a good working relationship with law enforcement. Fortunately, we have had from the start tremendous help from all law enforcement agencies and they work hand in hand in most of our situations.

A few of the ex-drug users who were fortunate enough to get off the drugs completely wished to start a contact referral center where young people could call or come when on a bad trip or overdosed with various drugs. We discussed this with the police and they stated that if no drugs were used within this place, they would keep a hands-off policy. They have kept their word to this day, and Terros House has become a referral center for some 40,000 calls a month. A medical clinic was also started in the Terros House where volunteer physicians spend two hours daily aiding the drug users with medications and treatment. Some 20 to 30 are seen daily with illness directly and indirectly related to the drug problem.

The main purpose of CODAC and its establishment was to prevent duplication of efforts that we noted so many other cities had. We needed an umbrella agency to coordinate all policies regarding the drug scene and hoped, with a varied board of directors and executive board, policies could be used to prevent duplications and to correlate our future.

A group called Creative Living was started by a psychologist. Young kids with a drug problem could come and talk with other ex-users and the physician in a group therapy type organization. Many young people were helped in this manner.

From the very early organization of CODAC, we felt education was the primary goal and the one thing that would help more than anything else. Dope Stop, which has since become internationally known, was started. Dope Stop (now called Teen Involvement) trains high school youngsters on the drug scene and they then go out to the grade schools and teach from the fourth grade up. As of January 1971, 1,700 high school students visited 70,000 grade students for one day per month educating

* Presented at the 113th annual meeting of the Kansas Medical Society, May 9, 1972, Salina.

them in the drug scene, and the problem that faces the user and the dangers of drug abuse.

A speaker's bureau was started where a number of professional and medical people speak to the adults of Phoenix to a tune of about 2,000 a week.

From the very onset of CODAC, we wondered about money and where we could get it. We needed a good response from the people of Phoenix—we got more than that, we got the finest response you could imagine. The people not only responded with their money but also with their hearts. We were able to collect over $300,000 from public support, after which we applied for and got government grants of over $300,000.

We next hired a medical director to correlate the CODAC umbrella agency. An executive board consisting of the officers plus heads of our various programs (Preventing and Education, Budgetary and Finance, Treatment and Rehabilitation) meets weekly correlating the business of CODAC.

A committee called the Drug Traffic Abuse Control Committee was formed to help in legal legislative matters, such as lobbying for changes in our present drug laws and penalties. This committee, composed of individuals from law enforcement, the medical profession, the legal profession, and pharmacy meets monthly and discusses changes in our present system.

A coordinating council composed of all organizations represented by CODAC meets monthly and discusses the CODAC policy.

We have had a community spirit that has never been lacking and that is the real reason behind CODAC success. All people involved have done their utmost to make our community a better place in which to live.

What are our results? We can't say as of yet, the drug problem is still ever-present and bad, but education of parents and young people alike should help to stop our ever-increasing drug abuse. We also cannot say our program will work in all other places. But we have found it to work well here, and have been proud to be involved in such a community effort.

What Can You Do as a Community Effort?

Get the medical society and the rapport of its physicians behind your program.

Correlate your actions with law enforcement.

Have people who want to work and give of themselves for a goal—not just for monies involved.

Alert your community through all sources of news media as to your approach and the goals you wish to obtain.

Complete your moves with the news media so that they can help—and they can be a tremendous asset.

Give strong advice to parents to:

Listen.
Don't use scare techniques.
Have knowledge and facts on the drug scene.
Use firm but fair discipline.
Set good examples.

Methadone Programs

(Continued from page 14)

on feasibility alone. At this point, it is difficult to see how such clinics could control the heroin used there. It is now uncertain that we can control methadone satisfactorily and still make it psychologically and practically acceptable to patients. I find myself unable to figure a way to avoid serious diversion risks with heroin, unless the patient is to report to the clinic several times a day, every day, for the rest of his life. Such a course would obviously be unacceptable to most patients.

Not discussed here were the complicated problems of the functions of the Food and Drug Administration and the Bureau of Narcotics and Dangerous Drugs in relation to methadone treatment programs. Neither have the current status of the law enforcement approach generally in relation to methadone treatment been discussed. Neither have we attempted to assess the probable impact of the new White House Special Action Office for Drug Abuse. The British system of treatment should be included as an important area for discussion.

Summary

There are numerous approaches to the treatment of narcotic addiction in use now. So far as is known, there is insufficient evidence to recommend discarding any of them. There is also no evidence yet that any single approach, such as methadone maintenance, will be suitable even for a majority of patients. On the contrary, there is reasonable clinical evidence suggesting that several different approaches may be needed at different times by the same patient. The whole problem of prevention is yet to be adequately explored. The real hope of the future by necessity appears to be in the bag of prevention. Unless we are lucky indeed, much expensive research will be needed to unlock that bag. We should be especially wary lest expensive treatment programs, designed to control problems, eat up so much money that none is left to do realistic research in causation and prevention.

The President's Message

Your enemies are:

- Those agencies of the federal government who discriminate against you;
- Those social planners who think you should work for the "welfare of man," disregarding your family's economics;
- Those hospital administrators who find new ways to regiment and restrict you, and to waste your time in senseless "make work";
- Those public health agencies who dispense free services where they are not needed.

Your enemies are not:

- The People—they love you;
- Doctors in the V.A., military, or salaried—they are your brothers;
- Your local competition, or a competing specialty society—for the same reason;
- The Medical School, insurance companies, the state government—they aid you;
- The press *per se*—they harm you without malice, and only by accident;
- Other professions, near-professions, unions—they ride in the same boat with you.

Gentlemen, concentrate on our enemies!

Surely we can fight discrimination—in court if need be. We can straight-forwardly tell social planners our main business is, as with any other man, the care of our families, and that their schemes rob our dependents. We can tell hospital people we will not fill out irrelevant forms; we will not attend meetings which are nonproductive for us; we will no longer tolerate restrictions merely to comply with rules originating in Chicago. Public health can be reorganized

to provide only those services which can be obtained from no other source.

This is as good a time as any to take a stand. Know your enemies. Make peace with those who are not. Decide your position. Announce it forcibly. Then hang on, come hell or high water.

Kenneth L. Graham MD

President

The Medical Article

A well-known national medical organization has announced its annual award competition for offerings of medical material from the various news media. We presume that the winner will be sufficiently critical of the profession to lend credence and satisfy the news profession, and still be palatable enough to the medical profession to warrant limited approval. On the basis of the frequency with which such articles appear, however, we predict that it will follow one of two formats.

One good bet is that the winning article or series will be one extolling some new therapeutic regime or technique. It will cite the work of some erudite physician-researcher with impeccable academic qualifications. It will report, in terms of restrained glee, that the subject disease, long the scourge of mankind, will shortly be nonexistent, and prudent application of the same principles to other areas should, in the course of a generation or so, make disease an interesting historical curiosity.

The other, and perhaps more likely, potential winner (because of the daring journalistic attitude demonstrated in its disclosure) will be the article disclosing the fact that some time-honored remedy is in reality a dangerous pollutant capable of hollowing out the liver, clogging the vessels, and curling the toes for three subsequent generations. That it ever was released in the first place was due to the combined efforts of the powerful medical and pharmaceutical lobbies, and its use by the medical profession has been prompted by ignorance, laziness, or desire for a fast buck.

Of one thing we are certain. The winner will not be an article about what has happened between these two landmarks of medical endeavor for the simple reason that the story has never been written. After all, it's just the story of everyday practice—the pip, the yuks, the backaches, the itches that occupy most of the physician's time. Readers don't want to read about that—they've been there. Well, whether they want to read about it or not (it certainly wouldn't make a Marcus Welby episode), between this Genesis and Exodus lies the practice of medicine.

Since medical articles are produced for lay consumption, they can perhaps be forgiven for not disclosing a few nonessential details. The announcement of the new miracle drug or technique should not diminish the excitement by noting that the substance has been checked out only on Chinese hamsters. There was one volunteer from Skid Row, but after he got his two dollar honorarium, he wasn't heard from again. Since the research was underwritten by a federal grant and funds from a foundation whose public relations department managed the announcement, the report overlooks the fact that the cost per unit dose is something over $37,000 but, hopefully, Blue Cross will cover it if it is administered in a hospital. The physician who reads the release, even with some professional insight and past experience, can hardly restrain a little thrill of hope that maybe this is it. This is forgotten in the midst of the phone calls and office hours spent explaining that the stuff really isn't available yet, and its value really isn't established yet, and it hasn't been reported in any medical journals except *Time* and the *Reader's Digest,* and he really isn't hoarding a secret supply to use on his bird dog, and you're absolutely right—the medical establishment scoffed at Pasteur at first. After which he will return to the pip, etc.

Although the news organs have become the first line of information on great medical accomplishments, even to the profession, the physician's life is not complicated so much by such offerings as those which might be classified as the "blowing-the-whistle" articles. These thrill the news editor and may even get the front page treatment usually reserved for murders, beauty contest winners, and city hall fights. The typical formula calls for one presumably well-established remedy, one report of undesirable effect preferably originating from some governmental agency or renowned institution, and a liberal dose of journalistic yeast. The physician learns of this right after the noon edition is out and distraught users of the remedy want to know what is what. It does not matter that countless numbers of patients have consumed ample quantities of the remedy to

(Continued on page 25)

Personalities—IN KANSAS MEDICINE

Charles R. Block, Wichita, was a speaker at the "Sex and Genes" lecture presented by the Wichita Clinic recently.

A. E. Titus, Cottonwood Falls, celebrated his 87th birthday recently by pausing briefly during the day to observe the event. Dr. Titus has practiced at the same location since 1913.

Speaking before a group of Beta Beta Chapter, **E. C. Brandsted**, McPherson, discussed the subjects relating to obstetrics and gynecology.

Leslie E. Becker, Kansas City, attended the annual ACEP scientific assembly at San Francisco.

George J. Mastio, Wichita, presented the graduating certificates to nurses aides, ambulance personnel, licensed practical nurses, and registered nurses who took part in the emergency medical technician program in Parsons.

K. F. Bascom, Manhattan, recently presented a talk on medical progress through the use of a chart, showing relationships between historical events and medical accomplishments from 1855 to the present. **George Bascom** spoke at the Marymount College, Salina, on the topic of the dying patient.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Jacqueline Baumeister, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Robert A. Boudet, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

James H. Chapman, M.D.
Providence Hospital
1818 Tauromee
Kansas City, Kansas 66102

Shu-Fang Chang, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

James R. Couch, Jr., M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Richard B. Darr, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Berno S. E. Ebbesson, M.D.
St. Francis Hospital
Wichita, Kansas 67214

James G. Hill, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Rae R. Jacobs, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Daryoush Jahanian, M.D.
155 S. 18th
Kansas City, Kansas 66102

Leone Mattioli, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Juan Carlos Nosti, M.D.
7301 Mission Road
Shawnee Mission, Kansas 66208

William A. Pilchard, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Ronald L. Stephens, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

David Waxman, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Richard M. Zakheim, M.D.
K. U. Medical Center
Kansas City, Kansas 66103

Mark Your Calendar Today!

114th KMS ANNUAL SESSION

May 6-9, 1973 Holiday Inn Plaza Wichita

Official Proceedings

1972 Fall Meeting of the House of Delegates

The Fall Session of the House of Delegates of the Kansas Medical Society was instituted principally to work on matters of legislative interest and for such emergency resolutions as might appear.

The resolutions acted upon by this House of Delegates are printed in numerical order under the minutes of the Second Session. All other resolutions introduced were delayed for action until May.

FIRST SESSION

The first meeting of the House of Delegates was called to order by the Speaker, Dr. Clair C. Conard, at 10:00 a.m. on Sunday, November 19, 1972, at the Holiday Inn, Lawrence.

Dr. Godwin presented the minutes of the last meeting of the House of Delegates, saying they were published in THE JOURNAL. There were no amendments and the minutes were approved.

Minutes of the Council meeting of September 24, 1972 were next presented. These were amended by deleting the first sentence of paragraph 7, on page 5, and approved.

The following written report of actions taken by the Kansas Foundation for Medical Care was presented and approved.

The Kansas Foundation For Medical Care

The Board of Directors of the Kansas Foundation for Medical Care met on September 24, 1972 and took the following actions:

1. Authorized the present officers to function until the next annual meeting.
2. Amended the By-laws, Chapter 1, with the addition of a new paragraph 9:
   "Resignation—Any member of the Foundation may resign upon submitting a request in writing thirty (30) days prior to the effective date of his resignation."
3. Authorized the directors to borrow money from the Kansas Medical Society for initial expenses to be repaid when the Foundation is self-supporting.
4. Declared "That to fulfill the obligations stated in the corporate purposes it is the desire of the Board of Directors to actively produce a self-supporting, effective, state-wide, locally performed peer review and utilization program."
5. The Board authorized studies to be conducted on malpractice, the evaluation of health insurance policies and companies that can be supported by the Foundation, and such other items which the Board might direct.
6. The Board acted to approve the following statement: "The Foundation, if successful, must be self-supporting and no membership dues are anticipated."

SECOND SESSION

After lunch, the House of Delegates reconvened for its second session.

The Reference Committee, composed of Dr. Jack Walker, Chairman; Drs. E. J. Chaney, P. A. Godwin, Vale Page, and Kermit G. Wedel recommended adoption of the following resolutions.

RESOLUTION NO. F-72-1

(Submitted by the Council)

Election of Councilors

WHEREAS, The election of councilors is now a haphazard procedure accomplished, according to the By-laws, at the annual session of the Society by a caucus of delegates from the district; and

WHEREAS, Local physicians would be better represented if the councilor were selected at another time by the county societies within the district; therefore be it

Resolved, That the By-laws be amended in section 8.11 by deleting from the second sentence from the end the words "at the annual session of the Society." That sentence would then read: *"Each councilor and an alternate are elected by a caucus of delegates from the component societies of the district";* and be it further

Resolved, That the By-laws be amended in section 8.11 in the second sentence from the end, to read: *"Each councilor and an alternate are to be elected by members of the component societies of the district prior to the convening of the House of Delegates; excepted, that the councilor or his alternate may be elected by a caucus of the delegates if the members have not done so by the date the House of Delegates convenes."*

RESOLUTION NO. F-72-3

Insurance Payments to Optometry

Not adopted.

RESOLUTION NO. F-72-4

(Submitted by the Executive Committee)

Resolutions for the House of Delegates

Resolved, By action of the House of Delegates that no resolutions will be accepted by the Speaker for consideration until the following meeting of the House of Delegates unless they are of a truly emergency nature or unless they have been submitted to the Executive Office thirty (30) days in advance of the Spring meeting, or seven (7) days in advance of the Fall meeting.

RESOLUTION NO. F-72-6

Replaced by No. 26.

RESOLUTION NO. F-72-11

(Submitted by the Committee on Malpractice)

Professional Liability

WHEREAS, Premiums for professional liability insurance have increased in the state of Kansas six-fold between the years 1966 and 1971 as a consequence of increased frequency of claims, increasing claim settlement for larger amounts, and increased administrative costs; therefore be it

Resolved, That the Kansas Medical Society submit legislative bills to:

A. Reduce the statute of limitations to two years for discovery, two years for filing, and

B. Submit a uniform arbitration bill.

RESOLUTION NO. F-72-17

(Submitted by Wyandotte County Medical Society)

Public Relations Program Re Legislation

WHEREAS, The Illinois State Medical Association has developed a successful public relations program wherein they tape TV interviews with state legislators on legislation relating to health; and

WHEREAS, This program cost the Association $3,500.00 for 100 separate interviews which received prime time coverage either in the 6:00 or 10:00 o'clock news programs 85 percent of the time; and

WHEREAS, It appears that this type of public relations effort could be adopted in the state of Kansas; therefore be it

Resolved, That the Executive Committee of the Kansas Medical Society be instructed to investigate this PR program developed by the Illinois State Medical Association and determine if it would be feasible for the Kansas Medical Society to implement a similar program, and report their decision to the next meeting of the House of Delegates.

RESOLUTION NO. F-72-18

(Submitted by Wyandotte County Medical Society)

Chiropractic

WHEREAS, Chiropractic theory and practice are not based upon the body of basic knowledge related to health, disease, and health care that has been widely accepted by the scientific community; and

WHEREAS, Chiropractic education is not of sufficient quality to prepare the practitioner of chiropractic to adequately diagnose disease conditions and initiate appropriate treatment; and

WHEREAS, Improper utilization of x-ray equipment by these untrained operators needlessly exposes the population to significant quantities of x-radiation; therefore be it

Resolved, That the cult of chiropractic is identified by the Kansas Medical Society as quackery and has no scientific basis.

RESOLUTION NO. F-72-19

(Submitted by Wyandotte County Medical Society)

Licensing of Foreign Physicians

WHEREAS, Numerous instances where noncitizens who are completely qualified by other state board examinations and specialty certifications have been required to take the Kansas Basic Science and Healing Arts examinations prior to the issuance of a license to practice in the state have come to our attention; and

WHEREAS, The basis for requirement of these qualified physicians to take the Kansas Healing Arts examination has been the fact that they were not citizens of the US despite their demonstrated proficiency on accepted examinations has resulted in their refusal to come to the state of Kansas to practice or has unnecessarily delayed the issuance of their license to practice; and

WHEREAS, We recognize the continuing shortage of qualified physicians in the state of Kansas; therefore be it

Resolved, That the Kansas Medical Society adopt as policy, the stance that noncitizen physicians who have shown proficiency in language and medical arts by passing the ECFMG and other state and national board examinations ordinarily recognized as equivalent to the Kansas State Board of Healing Arts examination to practice medicine and surgery, should be granted the same privileges of licensure in the state as US citizens; and be it further

Resolved, That copies of this resolution be sent to each legislator in the state of Kansas.

RESOLUTION NO. F-72-20

(Submitted by Wyandotte County Medical Society)

Reorganization of Healing Arts Board

WHEREAS, The licensure of physicians is such a vital matter to the health of the citizens of the state; therefore be it

Resolved, That the Kansas Medical Society strongly urge the Kansas legislature in any governmental reorganization, to maintain the basic integrity of medical licensure under the direct control of physicians licensed to practice medicine and surgery in this state; and be it further

Resolved, That a copy of this resolution be delivered to the Governor and each legislator of the state.

RESOLUTION NO. F-72-21

(Submitted by Wyandotte County Medical Society)

Coroners in Kansas

WHEREAS, The history of the coroners system in the United States has created a poor image of the coroner in the public eye, because of the use of largely non-medical personnel as coroners in the past; and

WHEREAS, Our state now has a truly professional Medical Examiner system, as only physicians licensed to practice medicine and surgery in the state of Kansas may serve as coroner; and

WHEREAS, The professionalism now present in the coroner's office requires minimum standards of communication and administration which are not currently reimbursed under Kansas statutes; therefore be it

Resolved, That the title of coroner be replaced by the title Medical Examiner in all appropriate statutes pertaining to the coroners system; and be it further

Resolved, That the office of Medical Examiner receive sufficient compensation from the appropriate Medical Examiner districts to adequately compensate for the administrative and communication expenses incurred in the professional discharge of the duties of that office; and be it further

Resolved, That the Kansas Medical Society be directed to petition the Kansas Legislature to amend the appropriate statutes to accomplish the above resolution.

RESOLUTION NO. F-72-22

(Presented by Lucien R. Pyle, M.D.)

Renal Dialysis Funding

WHEREAS, Chronic renal failure presents a unique dilemma; and

WHEREAS, There is a scarcity of centers for education, dissemination of information, and treatment facilities for those of our citizens who have terminal renal disease; and

WHEREAS, There are not sufficient local funds to adequately finance the development of an adequate number of educational and treatment centers in Kansas; therefore be it

Resolved, That the Kansas Medical Society support the application of the Kansas RMP in cooperation with Missouri and Southern Illinois for a federal grant to support the initiation of an adequate program for care of the renal cripple.

RESOLUTION NO. F-72-24

(Submitted by the Medical Society of Sedgwick County)

Substitution of Medications of Sources Other Than That Specified in Physicians Prescriptions

Resolved, That the Kansas Medical Society adopt the position taken by the American Medical Association in June 1971, of opposing the revision of existing state laws and pharmacy regulations that forbid the unauthorized substitution of drug products, and will work toward continuation of those laws and regulations and their full observance.

RESOLUTION NO. F-72-26

(Replacing No. 6)

The Licensing of Clinical Laboratory Technologists

WHEREAS, Certification of laboratories has been established and implemented by many agencies; therefore be it

Resolved, That the Legislative Committee be instructed to follow the concept that state licensure of laboratory personnel is unnecessary.

Medical-Legal Page

Damages Awarded for Failure To Diagnose Breast Cancer

A patient whose terminal cancer allegedly resulted from a failure to diagnose breast cancer in its early stages was awarded $300,000 by a California jury.

The patient, a 46-year-old woman, was a member of a health plan. In 1960 she began consulting health plan physicians, members of a medical group, for periodic breast and gynecologic checkups. A diagnosis of fibrocystic disease, causing lumps and enlargement of the breasts that changed with the menstrual cycle, was made.

In 1967 or early 1968, the woman found two small lumps in her breast that seemed different from the fibrocystic masses. They did not come and go with her menstrual period but persisted and slowly grew larger. She allegedly brought the lumps to the attention of a gynecologist and a surgeon, who assured her each time that they were simply fibrocystic growths and were nothing to worry about. In October 1967, the obstetrician wrote in the record that he had found two suspicious masses in the patient's breast but that they were simply fibrocystic cysts.

After two years, according to the patient, the original masses grew into one. By the middle of 1969 the mass was about the size of half a walnut. Again she was told there was nothing to worry about. The physicians later denied that the patient had made any such statements to them or brought the lumps to their attention. The only entries in the record were that each breast examination showed no suspicious conditions.

In July 1969, the patient claimed that her husband visited the medical group and talked to the surgeon about his wife's condition. The surgeon denied that this visit had occurred or that anything concerning the lumps had been brought to his attention. There was nothing in the record to support the patient's claim.

In January 1970, the surgeon first noted in the record a dominant lump in the area the patient had complained about. The physicians noted that the lump continued to grow, and in April 1970, they performed a biopsy. The tissue proved to be malignant, and a radical mastectomy was performed. At the time of operation, cancer was found in the axilla.

In an action for malpractice, the patient contended that the lump biopsied was the same one she had originally complained of to the physicians. The physicians claimed the lump biopsied was a new one that had developed between her visits in July 1969 and January 1970. They said that the patient's history supported this and that she was on record as having told several physicians that the lump that bothered her had developed in the last few months. The patient said that such comment referred to a new lump that developed above the old mass. The pathology report confirmed the fact that there was a satellite mass above the principal mass, which was found to be malignant.

After the mastectomy, the patient was given extensive cobalt therapy and chemotherapy. However, in the latter part of 1970 the patient had symptoms of metastasis in the bones of her leg, hips, and back. She ran a progressively downhill course. She claimed that the finding of cancer in the axilla and the distant metastases indicated that the tumor had been present for some time.

The physicians denied the existence of the first tumor and the patient's claim that she had brought it to their attention. They produced evidence that the malignant mass was a fast-growing highly malignant tumor that had developed in the last few months.

There was medical testimony that if what the patient claimed was true, then the standard of care had not been followed. The physicians maintained that they had followed the standard of care in all respects, and the record showed that no complaints had been made. They argued that when the tumor was first noticed they followed the standard of care. Further, they said there was no proof as to when the cancer had metastasized and that it could have happened before discovery of the lump.

The patient's testimony was given by deposition, because she was too weak to testify in detail, although she appeared in person. She was wheeled into court and testified in a weak voice while a nurse held a microphone to her mouth. She contended that failure to perform a biopsy on the area in question was negligence and that it was the only way to detect the presence of cancer.

The physicians contended the tumor was not present when the patient was examined in the summer of 1969. They said it was discovered in January 1970. The physician who discovered it said he had watched the lump until he determined that it was not waxing and waning with menstrual periods. He performed a biopsy in April 1970. He further contended that the patient had many other lumps because of the fibrocystic disease, and he had been checking her

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about every six months for nine years.

The patient's cancer had metastasized to various internal organs and was terminal at the time of trial. She claimed more than $1,200 in medical costs over and above her health plan insurance. At settlement talks, a demand of $325,000 was made. The jury awarded the patient $300,000. The opposing parties moved for a new trial.—*Heilburn v. Kaiser Foundation Hospitals* (Cal.Super.Ct., San Francisco Co., Docket No. 627860, 1971.)

Narcotic Antagonist

(Continued from page 15)

um, viral hepatitis, and most important in the frothing type of pulmonary edema with respiratory depression (or, no respiratory depression, just pulmonary edema following an injection of street heroin) any allergen or antigenic substance. The pulmonary edema (sometimes represented as an asthma attack) should be treated as a separate entity with assisted ventilation, steroids (Solu-Cortef 100 mg intravenously), antihistamines (Benadryl 50 mg intramuscularly) and ¼ to ½ ml S.C. of adrenalin.

Note that in some instances the respiratory depression may return in two to three hours (especially with methadone), necessitating another course of Nalline or Narcan titration.

References

1. Blumberg, H., *et al.:* N-Allylnoroxymorphone: A new potent narcotic antagonist. *Fed. Proc.* 20:311, 1961.

2. Rappolt, R. T.: Practical treatment of drug abuse. *Seminars Drug Treatment* 1:207, 1971.

3. Folds, F. F., *et al.:* The respiratory, circulatory and narcotic antagonistic effects of nalorphine, levallorphan and naloxone in anaesthetized subjects. *Canad. Anaesth. Soc. J.* 16:2, 1969.

Editorial Comment

(Continued from page 19)

the mutual satisfaction of treater and treated. It is now off limits. Well, not quite. It can still be used if the physician wants to fill out forms in triplicate and sign his name to show that he is calculatedly risking his patient's health.

This type of medical article is particularly pleasing to writers because it need not be confined to a therapeutic measure. With only minor adjustments, it can be applied to medical education systems, any number of elements of the health care system, any of the established precepts, so long as the basic outline is followed: statement of some deficiency, extension beyond its rational application, imputation of some crass motive to any who have utilized the method in the first place. There are only two things they must be wary of in their presentations. First, they must be sure to avoid any mention that the process has really produced a great deal of good in the course of its use—and could continue if the reaction doesn't annihilate it. Second, they must avoid any disclosure that the matter in question was a logical and desirable product of its day and fitted well into the requirements of the times.

It is too much to expect that some writer will present a study of any depth into the philosophy of medical practice in its total concept and translate it into a form which truly gives the public insight into the profession. This is not meant as the criticism it may seem to be. The physician is not an ordinary person. He is a practitioner of the most complex and significant professional endeavor the world has produced, and his total concept cannot be reduced to the language of the news columns. This is why the best communication of this philosophy continues to be in the physician's office.

And, anyway, some medical writers are given to hyperbole.—*D.E.G.*

Mark Your Calendar Today!

114th KMS ANNUAL SESSION

May 6-9, 1973 **Holiday Inn Plaza** **Wichita**

EATER'S DIGEST: THE CONSUMER'S FACTBOOK OF FOOD ADDITIVES by Michael F. Jacobson. Doubleday & Company, Inc., Garden City. 1972. 260 pages. $5.95.

More and more chemical additives are used in today's food to either enhance the flavor or the color, to preserve, or to enable convenient packaging by altering the food's physical state.

Food technology has been one of the most rapidly moving fronts, until today there is scarcely a food label which does not indicate some chemical substance in addition to the basic ingredients. Some of the food additives are useful in that they enable safer transportation over long distances, thus providing greater variety in the diets throughout the year. At the same time, a drastic reduction in the incidence of food-borne microbial disease has been achieved. Prepackaging food has revolutionized the domestic food preparation, freeing the housewife from the need of spending hours for preparing some food.

However, along with the obvious benefits, a question arises as to the safety of these unfamiliar chemicals—are all of them necessary, such as the artificial coloring of oranges and potatoes? Could some of the additives be in fact harmful to the human body, as was shown in the case of cyclamate in beverages; monosodium glutamate in hot dogs; safrale, and others? The risk-benefit ratio becomes the basic question.

The answer is not easily arrived at, because the number of ingredients on food labels is great enough to suggest an index in a chemistry textbook. For example, the powdered "citrus" drink contains: Sugar, citric acid, gum arabic, natural and artificial orange flavors, cellulose gum, calcium phosphate, sodium citrate, ascorbic acid, hydrogenated vegetable oil, vitamin A, artificial colors, and butylated hydroxytoluene. The non-dairy whipped topping contains 12 ingredients, and the popular cake mixes, 18.

The author contends that "today's foods contain more than $485,000,000 worth of several thousand food additives. In 1970, each of us consumed approximately five pounds of these chemicals." It was the author's intention to provide the public with an accurate, unbiased book, a readable report on food additives. His goal was to find the safety margin for each food additive.

The task was tremendous, and the result is an informative account, summarizing scientific material, interviews with scientists, governmental sources, and many food manufacturers. Many terms were analyzed and explained, so as to make them more meaningful for the reader, such as: Nutrients, flavor enhancers, thickening agents and stabilizers, antioxidants, meat analogs (chemical companies have devised ways of processing soy protein that gives it the taste, appearance, texture, and nutritive value of meat).

To argue that all food additives have been, are, and will be safe is as ridiculous as arguing that they are all dangerous. Some are safe at low concentrations, but toxic at high concentrations.

The book is easy to read and can be understood by a housewife. The reader will acquire a deeper understanding of the "value" of the foods one buys and consumes. Therefore, the book is highly recommended, and its title, *The Consumer's Factbook of Food Additives*, is most appropriate.—*P.L.*

USE YOUR MEDICAL LIBRARIES

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Woman's Auxiliary

Annie and her pals go gadding again

It's a bright, crisp October morning. Leaves crackle underfoot as you go out to get in your car, and your breath steams up your glasses. Crows caw and squirrels scurry around looking for last-minute tidbits to tide them over the winter. And Annie and her cronies load up their materials for workshop presentations and take off for the tall timber country over in eastern Kansas to put on the first of the five workshop sessions.

"Workshops?" you say. "Why would anyone want to come to an Auxiliary workshop? Besides, it sounds like work, not fun." Well frankly, it is and it isn't. It's a little work and a lot of fun. None of that "all work and no play" stuff for us. But seriously, we do get a lot done in a little time and enjoy ourselves too. Sometimes, Annie thinks there ought to be a better name for these sessions than "workshops," but there it is . . . it's what they are.

To explain a little, what we try to do is to take all the information that we learned at the fall conference in Chicago (remember all the PR tips Annie gave you last month?) and from the North Central Regional workshop (there's that word again!) and pass it on to the members at the county level. And we do a pretty good job of succeeding, too. Not everyone comes, of course, but those that do benefit by it and have a good time too.

This year, the AMA-ERF, legislation, community health and safety chairmen went to the North Central Regional Meeting for their orientation. The president and president-elect went too, of course. When we got back we had a few days to boil all the information down into 20-minute presentations to take to the state regionals. The gals did a good job of it, however, and did it in a snappy, fun way. Jean Cavanaugh, AMA-ERF chairman from Great Bend, showed off all her new purchases to tempt the women to do their Christmas shopping early. As usual, Annie spent a lot of money at that table.

Safety chairman Joan Colip, Norton, discussed safe car chairs and harnesses for children and showed us several types that are approved by the National Safety Council. Jackie Burnett, our legislation chairman from Halstead, donned her "get out and vote" skirt and brought legislative matters up to date. Nutrition was stressed by community health chairman Shirley Von Ruden, Hutchinson, and VD by Doris Lentz, the children and youth chairman from Topeka. Lenora Wiens, Ness City, and Dot Meyer and Corky Stark, Wichita, filled in the gaps about mental health, the bus and health education. And the president and president-elect had some things to say too.

Probably the nicest thing that happened was that Mrs. Wendell Roller, North Central Vice-President, came to the Sabetha and Lawrence meetings. And oh, the things she had to say! Our only regret was that she couldn't go to Norton, Great Bend, and Halstead as well.

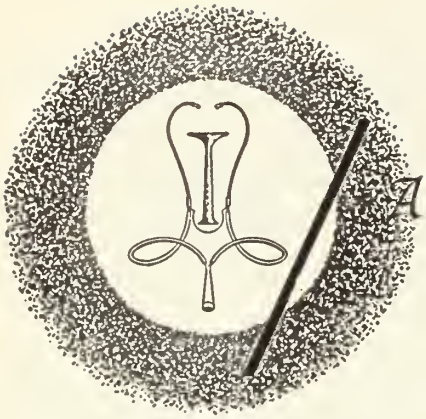
The fun part of the meetings were the nice luncheons, the fashion show, the trip through Norton's "Valley Hope" alcoholism center, the Halstead Health Museum, and the musical program at Great Bend. Everyone was wonderful, so it was worth all the effort.

The whole travel team kept going until all five regions had been visited in the three-week period. By the time we got to the last week most of us were about traveled out. In fact, the list of things that we forgot to pack or take with us is probably indicative of some sort of "jet set" time lag degeneration. Annie won't tell on the other women . . . they forgot some little personal items like slips and girdles . . . but she will tell on herself. The last week when we went clear up to Norton, which, as you know, is up by the Nebraska border, she went off without her coat. It was a good thing that the weather was fairly warm those two days, because all she had with her was a lightweight sweater and the cape to her red and black plaid slacks suit. Neither one looked too good over her dress clothes, but she wore them anyhow. To make matters sillier, she had packed three tubes of toothpaste and two toothbrushes! Gotta have that sex-appeal smile, you know.

When Annie got home and told her husband about forgetting her coat, and how lucky she was to get home just ahead of the snowstorm, he merely sighed and said "Don't worry. Old Auxilians never say die. They just go anyway."

Hope your holidays were all you wanted them to be. Yours

Auxiliary Annie



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.*

FEBRUARY

Feb. 23 — American College of Physicians, Kansas Regional Meeting. Holiday Inn Downtown Plaza, Wichita.

MARCH

Mar. 29-31 — National Conference on Urologic Cancer, Shoreham Hotel, Washington, D. C. Write: American Cancer Society, 219 E. 42nd, New York 10017.

APRIL

Apr. 1-4 — American College of Surgeons Annual Spring Meeting, Americana and Hilton Hotels, New York. Write: S. Frank Arado, 55 E. Erie, Chicago 60611.

POSTGRADUATE COURSES

University of Kansas:

Jan. 29-30 — *Cardiac Auscultation*
Feb. 1-2 — *Diagnostic Cytology*
Mar. 12-14 — *Pediatrics*
Mar. 26-28 — *Surgery*

For further information, write the Department of Postgraduate Medical Education, K.U.M.C., Kansas City, Kansas 66103.

University of Chicago:

Feb. 7 — *Gastrointestinal Bleeding*
Mar. 7 — *Nutrition in Prophylaxis and Therapy*

For details, write the University of Chicago, Frontiers of Medicine, Room 404, Culver Hall, Chicago 60637.

University of Colorado:

Jan. 21 — *Colorado Academy of Family Physicians* Annual Sunday Symposium
Jan. 22-27 — *General Practice Review*
Feb. 6-10 — *Seminar on Newborn Radiology*
Feb. 21-24 — *Surgery of the Hand*
Mar. 5-10 — *(Repeat of January GP Review)*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver 80220.

University of Illinois:

Mar. 5-10 — *Laryngology and Bronchoesophagology*
Mar. 26-29 — *Neurotology*

For details, write the University of Illinois Medical Center, Department of Otolaryngology, 1855 W. Taylor, Chicago 60680.

University of Miami:

Mar. 19-22 — *Pediatric Cardiology*

For details, write the University of Miami School of Medicine, Division of Continuing Education, PO Box 875, Miami 33152.

University of Texas:

Mar. 15-16 — *Problems of Office Pediatrics*

For details, write the University of Texas Medical Branch, Galveston 77550.

Letters to VOX DOX should be addressed to the Vox Dox Editor, Journal of the Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Epidemiology & Disease Control Services—Registration & Health Statistics Services—Kansas Morbidity Incidence
Summary of Cases Reported in July, 1972 and 1971

Diseases	July 1972	July 1971	July 5-Year Median 1968-1972	January-July, Inclusive 1972	January-July, Inclusive 1971	January-July, Inclusive 5-Year Median 1968-1972
Amebiasis	2	2	2	27	16	12
Aseptic meningitis	2	7	4	5	7	7
Brucellosis	1	—	—	1	1	1
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	—	—	5	7	5
Encephalitis, post-infect.	3	—	1	7	5	5
Gonorrhea	667	546	552	4,753	3,973	3,797
Hepatitis, infectious	56	62	37	312	407	293
Measles (Rubeola)	—	35	1	27	1,385	27
Meningococcal meningitis	—	—	1	15	24	15
Mumps	—	6	2	655	770	655
Pertussis	—	2	—	4	8	3
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	1	1	3
Rubella (German Measles)	—	13	1	195	610	51
Salmonellosis	30	184	33	222	347	151
Scarlet fever	—	2	1	31	44	31
Shigellosis	34	46	15	354	652	47
Streptococcal infections	340	203	203	3,778	2,887	2,887
Syphilis	92	112	112	788	832	789
Tinea capitis	—	—	1	13	11	20
Tuberculosis	18	14	17	113	93	125
Tularemia	2	2	1	2	2	2
Typhoid fever	1	—	—	2	—	1

TETANUS PROPHYLAXIS IN WOUND MANAGEMENT

The physician is often faced with questions concerning the use of tetanus toxoid, Tetanus Immune Globulin (Human) (TIG), or tetanus antitoxin of animal origin as part of his management of a patient with a wound.

Available evidence shows that complete primary immunization with tetanus toxoid provides long-lasting protective antitoxin levels. Additionally, protective antitoxin develops rapidly in response to a booster dose in persons who have previously received at least two doses of tetanus toxoid. Therefore, passive protection with TIG or antitoxin need be considered only when the patient has had less than two previous injections of tetanus toxoid or when the wound has been untended for more than 24 hours.

The following table is a conservative guide to active and passive tetanus immunization at the time of wound cleansing or debridement. It presumes a reliable knowledge of the patient's immunization history.

GUIDE TO TETANUS PROPHYLAXIS IN WOUND MANAGEMENT

History of Tetanus Immunization (Doses)	Clean, Minor Wounds Td	Clean, Minor Wounds TIG	All Other Wounds Td	All Other Wounds TIG
Uncertain	Yes	No	Yes	Yes
0-1	Yes	No	Yes	Yes
2	Yes	No	Yes	No*
3 or more	No†	No	No‡	No

* Unless wound more than 24 hours old.
† Unless more than 10 years since last dose.
‡ Unless more than 5 years since last dose.

If passive immunization is to be used, TIG is preferable to animal antitoxin. It offers the advantages of longer protection and freedom from undesirable reactions. The currently recommended prophylactic dose of TIG is 250 units for wounds of average severity.

(Continued on page 30)

The Month in Washington

The General Accounting Office (GAO), Congress' watchdog on federal spending, issued a voluminous report on the nation's health care system with recommendations that could save several billions of dollars annually.

The basic recommendations were for better construction, design and planning, better usage of health care facilities, and more emphasis on preventive medicine and group practice.

The year-long GAO study was commissioned by Congress originally to survey the Hill-Burton hospital construction program. The Senate Labor and Public Welfare Committee later asked the GAO to expand it to include all aspects of health care.

Reduction of hospital stays and more emphasis on outpatient treatment are essential, the GAO said. It was recognized that the health insurance coverage of out-of-hospital care has been increased, but the GAO said that "a large number of people still lack this coverage because they cannot afford to spend more money on health insurance." The American Medical Association, Blue Cross, and Blue Shield were reported as favoring further increases in outpatient coverage.

One out of four patients was reported to receive more hospital care than necessary. The report said that reducing hospital stays an average of one day would in effect add 96,000 beds to the nation's hospitals. It was estimated that putting patients needing long-term care, as opposed to acute, in special facilities would not only be less expensive but would make available 126,000 beds in general hospitals. Expansion of home health care programs would reduce the need for 20,000 hospital beds. Sharing of services by regional groups of hospitals could increase efficiency. For example, the 90,000 hospital beds allotted to obstetrics could be reduced by 38,000.

The report also said, sharing of services could cut demand for new hospital facilities for such proceduces as open-heart surgery, radiation therapy, and kidney dialysis. The GAO investigators found that of the 416 hospitals equipped to do open-heart surgery in 1969, 97 per cent used them less than four times a week. Pediatric and emergency services also offer sharing possibilities, the study said.

The study concluded that alternate health-care systems, such as prepaid group practice, foundations for medical care, and health maintenance organizations "may offer significant savings." The report said that such groups generally use at least 20 per cent fewer hospital days per 1,000 patients than traditional care.

The planning of health care was criticized as disorganized.

"Less than 50 per cent of the 163 health planning agencies responding to our inquiries about health facility needs provided data showing that they had knowledge of 1972 needs for various types of inpatient, extended, and ambulatory care facilities and beds," the report said.

The Bureau of Narcotics and Dangerous Drugs (BNDD) has proposed restricting sales of nine barbiturates which were described as highly addictive and linked to 1,771 suicides and deaths in 17 months.

The Bureau said the barbiturates are more dangerous than heroin.

"Withdrawal from the use of these drugs can be fatal and, in many instances, withdrawal symptoms are more severe from a barbiturate habit than from heroin addiction," BNDD Director John E. Ingersoll said.

He identified the barbiturates by their generic names as: amobarbital, butabarbital, cyclobarbital, heptabarbital, pentobarbital, probarbital, secobarbital, talbutal, and vinbarbital. He listed only five brand-name drugs: seconal (secobarbital), tuinal (amobarbital and secobarbital), amytol (amobarbital), nembutal (pentobarbital), and butisol (butabarbital).

The BNDD Director asked the Food and Drug Administration to place the nine barbiturates under the same controls as exist for cocaine, morphine, codeine, methadone, and amphetamine.

Tetanus Prophylaxis

(Continued from page 29)

When tetanus toxoid and globulin are given concurrently, separate syringes and separate sites should be used.

Should TIG be unavailable, equine or bovine antitoxin may be used, but there is a risk that serious antiphylactic or serum sickness reactions will follow. Its administration should always be preceded by careful screening for sensitivity in accordance with instructions accompanying the antitoxin. The usual dose is 3,000 to 5,000 units.

Buy U.S.
Savings Bonds

Kansas Press Looks at Medicine

CHANGING NEED

Under the so-called "Berry Plan," medical students have been able to obtain draft deferments and financial aid toward completion of their studies by agreeing to serve two years in military service after they have completed their academic work.

There has been nothing wrong with that. The young medics have served after they became doctors and have filled a very real need with benefits to all concerned.

But we feel that it is time to take another look at this program.

The ground war in Vietnam is virtually at an end —the casualty rate last week was the lowest in seven years, with not a single American GI killed in action —and it is obvious that the need for Army "medics" is not as critical as it once was.

But there are critical needs—critical shortages of medical skills on the home front, and we feel that these young doctors, deferred to complete their training, can now best serve the general public by entering the National Health Service. Under this program, doctors are assigned to areas of greatest civilian needs, and certainly the needs in many rural areas have become desperate ones.

It is our feeling that any young doctor who was deferred and aided financially toward a medical degree with a contract to help fill the military needs then existing should now have the option to help meet civilian needs through the National Health Service, and fulfill his two-year obligation by serving the public's peacetime instead of wartime needs.

Many other adjustments are being made in the transition from war to peace. Certainly the needs of the general public in areas critically short of medical facilities should rate attention.

It will perhaps be necessary to revise existing federal legislation in order to bring about transfers from the Berry Plan to the National Health Service, but if so, such a revision should be an early order of business in the national Congress. If administrative action alone is enough, then it should be done without delay.—*Phillipsburg Review,* Phillipsburg, Sept. 28, 1972.

PROFESSIONAL NEEDLE

The state Board of Healing Arts, in its infinite wisdom, has issued an edict against the practice of acupuncture by Kansas doctors.

Not because the board is against acupuncture as such, a spokesman said, but because the doctors aren't sufficiently acquainted with application of the 1,000-year-old Chinese needle medicine.

On the surface, this seems to be a commendable step for patient protection. But it begs the question of whether acupuncture is just a quaint Oriental custom or a valuable medical technique.

If the state's healers are so poorly informed about the practice as to be incapable of participating in it, they hardly seem qualified to judge its effectiveness either.

And if they don't know enough about acupuncture to be trusted with practicing it, how are they supposed to learn? Read about it in the *Chinese Medical Journal,* or wait for special courses to be offered at the school of medicine?

The thought also occurs that even a judgment of ineffectiveness might not be sufficient for blanket rejection. After all, presently sanctioned medical procedures aren't all guaranteed either.

If they were granted a choice, though, most patients no doubt would stick with the pills and shots approach to treatment. But in the meantime they want to be sure the professional conscience is clear.—*Chanute Tribune,* Chanute, July 14, 1972.

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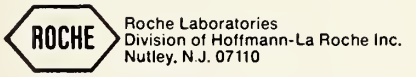

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Urticaria and Angio-Edema

A Systematic Approach

CURTIS C. DREVETS, M.D., F.A.A.A.,* ***Wichita***

URTICARIA (hives) is characterized by erythematous or blanched cutaneous elevations of smooth or irregular ovoid outline in the superficial layers of the skin and mucous membranes. These wheals are usually intensely pruritic and may either be scattered over the body surface, or limited to certain areas of the body, such as the trunk, the palms, or the soles. These individual wheals disappear without residua within 48 hours, but new eruptions may continue to appear for indefinite periods.

Urticaria is a common clinical problem which often represents a nuisance to the patient and an unimportant disorder to the primary physician. In the form of angio-edema it can be life threatening. To the allergist and dermatologist, this should represent a challenging symptom complex that deserves interpretation, accurate diagnosis, and rational therapy.

Angio-edema is also a well-demarcated edematous process, but it involves the deeper layers of the skin and submucosa. Cutaneous lesions may cause a burning or stinging sensation. Involvement of the gastrointestinal tract may cause dysphagia or colicky pain. Laryngeal angio-edema leads to hoarseness, stridor, dyspnea, or respiratory obstruction.

Chemical Mediators

There is general agreement that histamine released from the granules in mast cells is the most important mediator in urticaria and angio-edema in man. Histamine is a strong vasodilator and it increases capillary permeability. Other substances, such as serotonin, bradykinin, slow reacting substance (SRS) galladin, and other kinins share this action to varying but lesser degrees. None of these, however, cause the itching so common in urticaria.

There are certain host factors involved in determining the relative significance of these potential mediators. Histamine's brief action is not blocked by antihistamines, but rather it is blocked by other non-antihistaminic chemicals. There are also two by-products of the complement system that cause increased local vascular permeability in man. Further discussion of work on chemical mediators is beyond the scope of this paper.

Classification

Before discussing the diagnostic approach, the general types of urticaria and angio-edema will be discussed. There are numerous approaches to a system of classification. The following have been chosen for this discussion: Valentine, Sheffer, and Austen.[1]

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I. Immunological
  A. Immediate
    1. anaphylactic
    2. atopic
    3. cytotoxic
  B. Subacute
    1. accelerated
    2. serum sickness
II. Nonimmunological
  A. Dysphylactic (altered protection)
    1. hereditary angio-edema
    2. urticaria caused by physical stimuli
      a) cold urticaria
      b) solar urticaria
      c) traumatic urticaria
    3. urticaria due to histamine liberators
    4. angio-edema due to aspirin
  B. Idiopathic
    1. cholinergic urticaria
    2. dermatographism
III. Miscellaneous

Immunological

Anaphylactic

Urticaria may accompany systemic anaphylaxis in man as characterized by bronchospasm, hypotension, or primary vascular collapse. Or urticaria may occur in the absence of other systemic signs as the sole manifestation of an anaphylactic reaction. This reaction is mediated by a homocytotropic antibody of the IgE class, also called reagin. This antibody localizes on or near the mast cell, and on exposure to the specific antigen, a noncomplement esterase causes degranulation and histamine release. A second pathway is followed when soluble antigen-antibody complexes are absorbed on the mast cells.

Antigens that commonly stimulate reaginic antibody production in man include foods (especially fish, nuts, and cottonseed oil), stinging insects, various infections (especially parasitic infestations), and certain drugs. There is more confusion about the significance of this group in the cause of urticaria than any other, especially since some physicians try to put all urticaria in this group. All too often foods are incriminated but not proven. In general, there are very few highly antigenic foods, and urticaria due to foods is quite uncommon.

Atopic

This subgroup differs from the preceding group primarily in the presence of homocytotropic antibodies of the IgE class (reagin) that develop following natural exposure to air-borne pollens, mold spores, and animal dander. Such persons usually develop symptoms of asthma or rhinitis on exposure to these allergens. Less commonly when exposed to unusually large concentrations of aeroallergens, these persons may develop urticaria. Persons undergoing hyposensitization therapy for their atopic diseases may experience urticaria or angio-edema after an inadvertent overdose of antigen.

Cytotoxic

The cytotoxic type of reaction is characterized by transfusion reactions, when iso-antigens in the donor's red blood cells react with the recipient's iso-antibodies in the presence of serum complement. This type of reaction is mediated by a complement fixing antibody of the IgG or IgM class.

The subacute group has been subdivided into an accelerated group and those with serum sickness. The former includes patients who develop urticaria and angio-edema hours after antigen exposure. This group is merely a modification of the anaphylactic urticaria. This has only been described in patients having a positive skin test and neutralizing antibodies (IgG) to the major antigenic determinant of penicillin, but they develop urticaria hours after penicillin administration. It is suggested that the urticaria is due to an IgE antibody against the major antigenic determinant, but that the reaction is modified by the IgG neutralizing antibody.

Serum sickness is a well-known cause of urticaria and classically occurs at about 10 days after antigen administration. This process is a protracted interaction between antigen and antibody in the circulation, with the formation of antigen-antibody complexes in an environment of antigen excess. This mechanism may be the cause of urticaria in a number of drug reactions, as well as collagen vascular diseases such as systemic lupus erythematosus.

Nonimmunological

Dysphylactic is a term coined to indicate those who have altered protection, in contrast to the anaphylactic, or those without protection. Hereditary angio-edema is characterized by recurrent, circumscribed subepithelial edema of the skin and the mucosa of the gastrointestinal and upper respiratory tracts. The distinctive combination of recurring angio-edema with gastrointestinal symptoms, throat and laryngeal swelling, and a family history of the disease are suggestive of this rare group. Respiratory death due to airway obstruction is common in patients who have a functional absence of an inhibitor of the first component of complement. This absence of inhibition allows stimulation of the complement system to proceed unchecked, and leads to angio-edema.

Urticaria may be caused by physical stimuli, such as cold and light (solar). Cold urticaria may occur on exposure to cold air or even to ordinary tap water. Collapse while swimming is common in patients with this disorder. There are two forms: the primary

form, which may be familial or sporadic, and a secondary state due to other diseases, such as multiple myeloma, syphilitic cold hemoglobinuria, and conditions associated with cryoglobulinemia.[2] In some, a circulating antibody can be shown by passive transfer studies. The urticaria often appears on warming after the cold exposure.

Solar urticaria typically appears on unshielded skin minutes after exposure to sunlight. This may be quite benign or may be associated with extensive urticaria, massive gastric hypersecretion, malaise, and shock. Two types have been identified. The more common type is caused by ultraviolet light, 4000 to 5000 Å. The second type is caused by ultraviolet light of 3700 Å, and may be passively transferred by serum. Urticaria may occur after trauma of various degrees and after pressure. Pressure urticaria is unique in that it may not develop until several hours later.

Urticaria due to chemical histamine liberators is evident when a variety of chemical compounds possess the inherent ability to release histamine from the mast cells. These substances produce a wheal and flare when injected intracutaneously. They may cause symptoms of local or generalized histamine release when administered in doses sufficient for systemic absorption. Certain drug reactions which might appear to be of the immunological (anaphylactic) type may be the result of nonimmunological chemical histamine liberation. Common examples include morphine, codeine, polymyxin B, some broad spectrum antibiotics, and curare.[2] Iodinated organic compounds used as x-ray contrast materials have caused such reactions.

There are several reports in the medical literature describing angio-edema which occurs after the ingestion of aspirin.[3] This is apparently an acquired state which usually develops in middle age in predominantly nonatopic patients. The action of aspirin is probably due to the salicylic acid radical. It has been demonstrated that induced intradermal histamine wheals, measured four hours after 600 mg of aspirin intake, were larger in a group of patients who had taken aspirin than in the control group. This suggests the mode of action in aspirin-induced angio-edema is by enhancing the effect of histamine in the skin.

Idiopathic

Cholinergic urticaria is a well-known entity characterized by very small, highly pruritic lesions occurring anywhere on the body surface involved in sweating, except the soles, palms, and rarely the axillae. These are often heat or stress induced, and provide an interesting link between sensory stimuli and symptomatic urticaria by means of the nervous system. This may be induced experimentally in susceptible individuals by exercise, heat, emotional stress, and the intradermal injections of methacholine or nicotine picrate. Acetylcholine released to initiate sweating is thought to degranulate mast cells in the immediate vicinity of some sweat glands, locally releasing histamine and causing the small discrete hives.

Dermatographism, or urticaria factitia, differs from the physiological reaction of pressure-trauma induced urticaria by an exaggerated response to minor stimuli. It occurs in 5 per cent of the populace and can be divided into two groups. In the first group, hives are caused by minor trauma such as the pressure from belts, garters, abrasions, or irritative fabrics. This low threshold reaction has been observed in hyper- or hypothyroidism, diabetes mellitus, infectious diseases, and in menopausal women. The second group reacts specifically to mechanical stimulation and is usually not associated with other types of urticaria. In many of this subgroup the passive transfer of a serum factor is positive.

Miscellaneous

There are a number of clinical conditions with urticaria or angio-edema that are not classifiable by the preceding system but should be enumerated. Urticaria may occur with a number of malignancies and myelo-proliferative disorders such as polycythemia vera, myeloid metaplasia, and leukemias. Three endocrine diseases that may be associated with urticaria are hyperglycemia of diabetes mellitus, myxedema, and the menopause.

Urticaria pigmentosa is characterized by a local increase of mast cells in pigmented superficial lesions and systemic mastocytosis by widespread accumulations in the skin, bone marrow, and gastrointestinal tract. The former is usually seen in children and is relatively benign and self-limited. In systemic mastocytosis where systemic symptoms are common and more severe, it is especially important to avoid aspirin and chemical histamine liberators.[2] The urticaria accompanying a variety of infections is only poorly understood in many patients. Clinically, it is one of the most important causes of urticaria. The role of emotions, except in cholinergic urticaria, is most difficult to assess and is often diagnosed by exclusion.

Incidence of Etiologic Factors

Cooke,[4] the father of modern allergy, has estimated that 35 per cent of his cases of chronic urticaria were due to infections, 10 per cent to foods, and another 10 per cent to drugs. The remaining 45 per cent could not be classified as to etiology.

More recently, in 1968, in a study of 50 patients with chronic urticaria, Miller *et al.*[5] were able to determine the cause in all but two patients. They di-

vided their etiologic factors into primary and secondary. Their findings were as follows:

Diagnosis	*Primary*	*Secondary*
Drug induced	5	9
Inhalant allergy	11	11
Food allergy	2	3
Infection, focal, or systemic	6	13
Cholinergic disease	9	1
Cholinergic component	8	8
Mecholyl sensitivity	0	3
Physical allergy	4	1
Dermatographism	3	8
Collagen vascular	2	2
Psychogenic		5
Contributing factors		
Dry skin		26
Contactants		2
Thyroid		1

Diagnosis and Evaluation

The history is obviously the most important diagnostic portion in patients with urticaria and angio-edema. The physician should carefully search for antecedent medications, exposure to various allergens, relationship to physical agents, symptoms suggesting infections, or associated disease states.

The physical examination is less significant but does distinguish between the typically transient urticarial wheal, the small 1 to 4 mm lesions so characteristic of cholinergic urticaria, the persistent pigmented infiltrated lesions of urticaria pigmentosa, and the swelling of angio-edema as it is differentiated from other causes. Inspection of the skin will also exclude other skin disease which occasionally appears urticarial, such as atopic dermatitis and dermatitis herpetiformis. A general physical examination is critical for the diagnosis of other underlying diseases.

Skin Tests

Positive responses to intracutaneous administration of allergens may be helpful in determining immunological reactions that are not complement dependent. Skin tests for the immediate reaction are very helpful in confirming inhalant allergens in allergic rhinitis and asthma, but of limited value in the diagnosis of urticaria. Skin tests for food allergy are generally unreliable. Food allergy is best confirmed by elimination and challenge. The exception to this generalization is in responses to fish, shellfish, nuts, and cottonseed oil. There are problems in the diagnosis of drug reactions by skin tests. The classic penicilloyl-polylysine (penicillin) skin test is usually positive shortly after the reaction, but the positivity quickly diminishes with time. Passive transfer tests have little to offer in most patients.

The peripheral blood may show a decrease in circulating basophilic leukocytes as an index of histamine release. While basopenia is generally not selective, eosinophilia may be a more specific diagnostic sign. Although it is generally minimal or absent in urticaria, eosinophilia may be very significant in such diseases as parasitism, serum sickness, drug reactions, polyarteritis, and systemic mastocytosis.

Two laboratory tests can give values for the very complex complement system but their use is not widely available. The first test is to estimate the hemolytic serum complement activity, and the second is a quantitation of the beta, c-beta, A globulin. These tests may be helpful in the diagnosis of the following: hereditary angio-edema, serum sickness, lupus erythematosus, and various dysproteinemias.

Other special tests include limited exposure to cold, heat, sunlight, and trauma in those suspected of having urticaria due to physical agents. An ice cube applied directly to the skin for varying periods of time is used to diagnose cold urticaria. Likewise, cholinergic urticaria may be initiated by intradermal injections of 0.01 mg methacholine or 1×10^{-5} mg nicotine picrate.[6] Small 1 to 2 mm pruritic papular lesions about the primary wheal give a positive test. Skin biopsy and bone marrow examination are helpful in systemic mastocytosis. There are many other tests helpful in diagnosing infections, collagen, and other diseases that may be associated with urticaria.

Elimination programs are commonly used in the diagnosis of suspected food and drug allergens. This should be followed by a successful challenge with the offending allergen.

Treatment of Urticaria and Angio-edema

In general, the therapy of urticaria is less than ideal. As is true in all of medicine, therapy is much better when it follows a specific etiologic diagnosis. Three principal comments, however, can be made regarding the therapy of urticaria and angio-edema. First, edema of the mouth, tongue and pharynx, or larynx almost always is a medical emergency demanding immediate treatment with sympathomimetic amines (as epinephrine or isuprel), antihistamines intravenously, and airway management.

The second principal point is that treatment of an isolated acute attack is generally more successful than the prevention of chronic urticaria. Third, it is easier to achieve satisfactory control, defined as only an occasional mildly pruritic lesion, than to gain total eradication.

The obvious ideal method of treatment is avoidance or elimination of the causative factor. In most cases due to drug or other allergen-induced urticaria this leads to cessation of symptoms. Infections which commonly cause urticaria should be eradicated. Other underlying disease states with symptomatic hives should be treated.

Commonly, the causative factor cannot be identified, especially in the patient with recurrent attacks. In these, antihistamines are the first line of therapy and are often effective in both acute and chronic therapy. Antihistamines do not prevent mast cell degranulation, but they apparently compete with histamine, combining sites, or alter histamine action by another mechanism. Sympathomimetic amines reduce capillary permeability and edema. Epinephrine has to be injected, but isuprel can be taken sublingually for rapid action. This latter is useful in patients with acute attacks of angio-edema or sudden reactions, as after a sting by insects. Ephedrine can be used for slower but more prolonged therapy. Cyproheptadine (Periactin®), nicotinic acid, calcium chloride, and sedatives (phenobarbital) are helpful to relieve itching. Hydroxyzine (Atarax® or Vistaril®), a mild tranquilizer with antihistaminic properties, is one of the most useful medications. This is especially helpful when there is an emotional factor involved, and in cholinergic urticaria.

Corticosteroids are often useful, especially in the acute attack, but must be used judiciously because of their long-term side effects. These agents act in a number of ways: (1) they are lympholytic and depress antibody synthesis in high doses; (2) they diminish or prevent both non-specific and complement dependent cell lysis; (3) they affect the host's sensitivity to many chemical mediators; and (4) they are strongly antiinflammatory.

Topical therapy of various types offers little help. Antimetabolites, antimalarials, alkalating agents, and mercaptans may be useful in certain underlying diseases, but their use is not recommended in most patients with urticaria. Other experimental medications include heparin, alpha adrenergic drugs, and aspirin (in patients shown not to have aspirin sensitivity).[2] A new experimental drug is being tried in hereditary angio-edema.

In colder climates, dry skin with its attendant itching may contribute to the problem and should be treated by avoiding excess washing and by using skin emoluments. Other contributing factors as contactants should be avoided and endocrine problems should be corrected.

Summary

In summary, urticaria and angio-edema are a perplexing problem in diagnosis and therapy. An attempt was made to demonstrate that this should be thought of as a symptom complex, rather than a disease process in itself. An etiologic classification was presented to encourage a systematic thought of causative factors in the diagnosis. The medical history, a careful physical examination, and a few laboratory studies will help to arrive at an appropriate diagnosis in the majority of patients. In practice, it is often difficult to adequately determine the cause in each patient. Therapy consists primarily in avoiding the causal factor. Also, drug therapy includes antihistamines, sympathomimetic amines, hydroxyzine, steroids, and others. Therapy of underlying illnesses is also important.

References

1. Valentine, M. D.; Sheffer, A. L. and Austen, K. Frank: Urticaria and angioedema. *Immunological Diseases*. Boston, Little, Brown and Co., 1971, pp. 906-915.

2. Thompson, John S.: Urticaria and angioedema. *Ann. Intern. Med.* 69:361, 1968.

3. Moore-Robinson, M. and Warin, Robt. P.: Effect of salicylates in urticaria. *Brit. Med. J.* 4:262-4, 1967.

4. Cooke, P. A.: Quoted in Sherman, William B., *Hypersensitivity Mechanisms and Management*. Philadelphia, W. B. Saunders, Co., 1968, p. 356.

5. Miller, D. A.; Freeman, G. L. and Akers. Wm. A.: Chronic urticaria: A clinical study of fifty patients. *Amer. J. Med.* 44:68, 1968.

6. Sheldon, John M.; Lovell, Robert G. and Mathews, Kenneth P.: *A Manual of Clinical Allergy*. Philadelphia, W. B. Saunders Co., 1967, p. 248.

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The Value of Monitoring

Fetal Asphyxia and Fetal Surveillance

CESAR VILLANUEVA, M.D.,* *St. Louis, Missouri*

ASPHYXIA is a state of circulatory collapse, induced by failure of gas exchange in the lungs or, in fetal condition, in the placenta.

In the human fetus during labor and in the premature newborn, asphyxia is a disorder with serious implications. It is a major cause of infant demise and permanent impairment of the central nervous system when the fetus or newborn survives. In 1970, at the Boston Hospital for Women, asphyxia was responsible for 20 fetal and 23 neonatal deaths, out of 180 perinatal deaths.[1] In addition, Billings[2] showed that in 14 (4.2%) of a group of 329 children, whose birth histories suggested asphyxia in utero, major impairment of the central nervous system was demonstrable during the two-year period of followup after birth. All 14 children were mentally retarded and, except for two, also had cerebral palsy.

Asphyxia in the human infant occurring before or during birth has serious implications; it can lead to fetal or neonatal death, or should the infant survive the hypoxic stress, permanent impairment of the central nervous system. Presently employed methods which allow for the early recognition of fetal asphyxia are reviewed, including the pathogenesis and management of asphyxia.

Pathogenesis of Asphyxia

Although the hallmarks of fetal and neonatal asphyxia are hypoxia, hypercarbia and acidosis, the most important phenomenon observed in asphyxia is failure of the systemic circulation of the fetus or newborn. Inadequate supply of oxygen or increased utilization produces myocardial hypoxia, cardiac decompensation, circulatory failure, and ultimately acidosis. Both latter phenomena, although reversible, are ominous; when adequate systemic circulation is not quickly restored, fetal or neonatal death occurs, or the infant survives with serious injury to the central nervous system.[3]

Etiology of Fetal Asphyxia

The causes of fetal asphyxia are many.

Diminished Intervillous Perfusion

Maternal Circulatory Failure

Cardiac Decompensation (rheumatic heart disease, arteriosclerotic and hypertensive heart disease)

Reduced Maternal Venous Return (maternal hemorrhage, supine hypotensive syndrome, hypotension induced by conduction anesthesia, and maternal positive pressure ventilation)

Increased Resting Tone of the Uterus, and Excessively Frequent or Prolonged Uterine Contractions (dyskinetic labor and excessive amount of oxytocics)

Uterine Arterial Spasm (overproduction of norepinephrine secondary to maternal discomfort during labor)

Uterine Endarterial Disease (essential hypertension, diabetes mellitus, pre-eclampsia and eclampsia)

Reduced Functional Capacity of the Placenta (placenta previa and abruptio placentae with hemorrhage, and premature separation of the placenta of the second twin)

Umbilical Cord Occlusion

(cord prolapse)

Increased Oxygen Utilization

Fetal Trauma (hypersystolic labor and fetopelvic disproportion)

Fetal Pyrexia (maternal endometritis, chorioamnionitis, and acute pyelonephritis)

Fetal Hypovolemia

(scalp bleeding, traumatic amniocentesis, and vasa previa)

Diagnosis of Fetal Asphyxia

Chronic fetal asphyxia, and asphyxia occurring before labor, is implied by diminishing concentrations of estriol in maternal plasma or urine, or by reduced oxygen reserve of the placenta, determined with the maternal oxygen deprivation test.[4-6]

Acute fetal asphyxia is recognized during labor through monitoring of fetal heart rate, by sampling

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fetal scalp capillary blood and determining the amount of hydrogen ion and pressures of oxygen and carbon dioxide. Some investigators have found electroencephalography suitable for the early diagnosis of fetal cerebral ischemia, and clinical application may be forthcoming.[7–9]

Continuous surveillance of fetal heart rate is accomplished with an extra-abdominal microphone which receives and amplifies heart sounds, or with a silver clip electrode attached to the fetal scalp. The latter device receives electrical impulses from the fetal heart. The segment of electrocardiograph complexes, or phonocardiographic impulses, then drive a cardiotachometer which display beat-to-beat tracings of the fetal heart rate in a dynograph recorder or cathode ray oscilloscope. Since the phonocardiograph has a small signal-to-noise ratio it is frequently not satisfactory during labor, and because fetal electrocardiography requires prior rupture of fetal membranes and cervical dilation to at least 3 cm, a third alternative, the ultrasonic method, is currently best for most situations.

An ultrasonic transducer is placed on the skin of the maternal abdomen and directed toward the uterine contents, specifically the fetal heart. A water-soluble gel is employed to bridge the interphase between transducer and skin. High frequency alternating current passes through a piezo-electric crystal in the transducer causing it to vibrate and emit high frequency sound (2 million cycles per second) which is beyond the range of human hearing. The ultrasonic beam is reflected by the fetal heart. The echo is received by another piezo-electric crystal in the transducer and converted back into electrical energy. Movement or contraction of the fetal heart is recognized through the Doppler's principle. Ultrasound waves are compressed by the heart surface during ventricular filling, and expanded when reflected during ventricular contraction. Computer logic disregards the usual ultrasonic echoes, and activates the cardiotachometer when echoes with augmented (compressed ultrasound waves) or reduced (expanded ultrasound waves) frequency are received.

Monitoring of fetal brain waves is accomplished through suction electrodes applied to the fetal scalp.[10] Spike phenomenon and flattening of wave forms indicate cerebral ischemia and metabolic acidosis.[7, 8]

Capillary blood from the fetal scalp, buttock or heel, after membranes are ruptured, is obtained with a 2 x 2 mm lancet attached to a long handle. The presenting part is visualized through a fibre-lighted amnioscope and 150 to 200 ml of blood collected in a long heparinized pipette. The sample is drawn into the pipette by capillary action or oral suction (Eschmann fetal scalp sampling kit).

A pH-gas apparatus displays the concentration of hydrogen ion and pressures of oxygen and carbon dioxide in its digital read-out screen, 4, 60 and 90 seconds respectively after blood is deposited in its sampling chambers (Corning 160 pH/blood gas apparatus).

Frequently, when surveillance of fetal heart rate is performed, simultaneous recording of maternal uterine pressure is done also, and accomplished with a water filled teflon catheter and latex micro-balloon introduced transvaginally into the uterus and left in place in the extraovular space. An electronic transducer converts pressure into electrical impulses which activate a stylus in the recorder. Employment of an extraovular balloon allows fetal membranes to stay whole; this is especially valuable in elective induction of labor.

Information about the quality of labor is vital in women with dystocia, and knowledge of the periodicity of alterations in fetal heart rate and their relation to uterine contractions make possible classification of fetal heart rate phenomena into early, late or variable, and occasional or frequent deceleration or acceleration.

Validity of Present Methods of Fetal Surveillance

Greiss[11] demonstrated that uterine blood flow at the maximum of a labor contraction is merely one-third of the uterine blood flow when the myometrium is at rest. Myers[12] showed that during labor, when maternal aortic blood flow is reduced through partial occlusion, late deceleration of the fetal heart rate, fetal hypoxia, hypercarbia, and acidosis result. In addition, Myers revealed that brains of Rhesus monkey infants subjected to a period of prolonged partial asphyxia before birth showed zones of necrosis involving the paracentral cortex identical to that found in the asphyxiated human fetus. Motor and sensory behavior of monkey subjects before sacrifice was suggestive of cerebral palsy. Abnormal fetal heart rate phenomena and blood gas values were rapidly evident in prolonged partial fetal asphyxia, but the change in hydrogen ion concentration in systemic blood occurred later. Fetal heart rate alterations will, therefore, not always correlate with pH values.

Because early deceleration of the fetal heart rate occurs simultaneously with uterine contractions, and because grasping the head of a newborn and gently applying pressure on the anterior fontanel produces immediate deceleration of the heart rate, the phenomenon is thought to result from increased intracranial pressure *(Figure 1)*. This vagal reflex can sometimes be evoked in the fetus during vaginal examination by applying pressure on the engaged head.

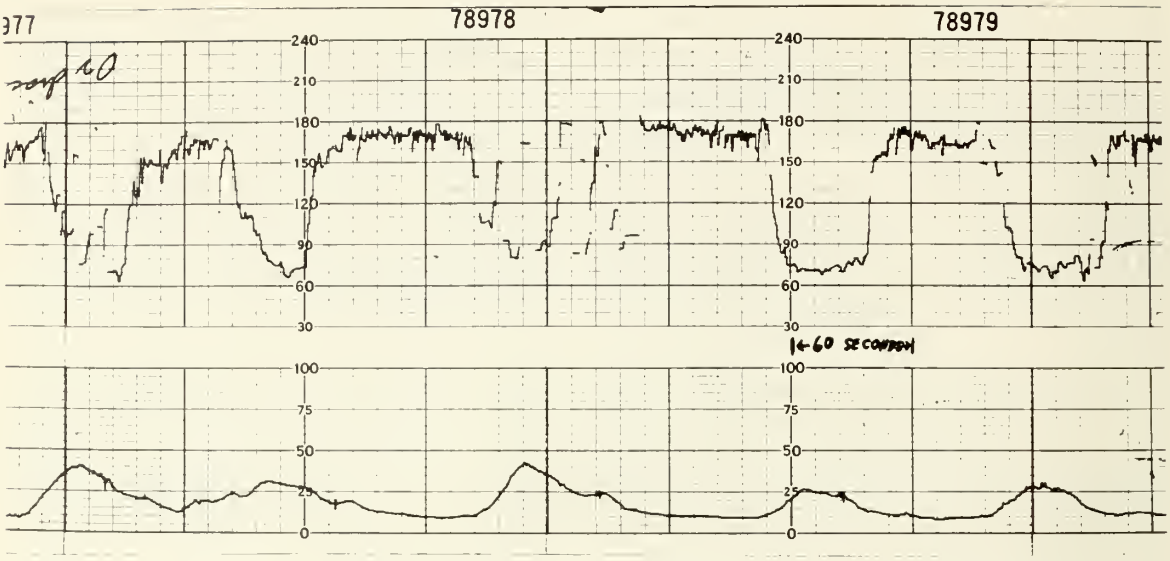

Figure 1. Severe early deceleration of the fetal heart rate during labor. The upper tracing is fetal heart rate in contractions per minute. The lower tracing is intrauterine pressure in mm Hg. The momentary reduction in fetal heart rate and increase in intrauterine pressure due to uterine contraction occur simultaneously.

The circulation time through the umbilical vein from the placenta to the fetal heart is approximately 30 seconds. Impaired intervillous perfusion, momentary reduction of fetomaternal gas exchange, and fetal myocardial hypoxia are probably responsible for late deceleration of the fetal heart rate, because the deceleration usually occurs some 20 to 30 seconds after uterine contraction has reached maximum intensity *(Figure 2)*.

Variable deceleration of the fetal heart rate *(Figure 3)* is occasionally abolished by altering the parturient's recumbent position from dorsal to lateral, from right lateral to left lateral, or vice versa; this suggests umbilical cord occlusion as an etiological factor. Additionally, in Rhesus monkeys, variable deceleration is observed when the mother is subjected to fright.

Absence of beat-to-beat variation of the fetal

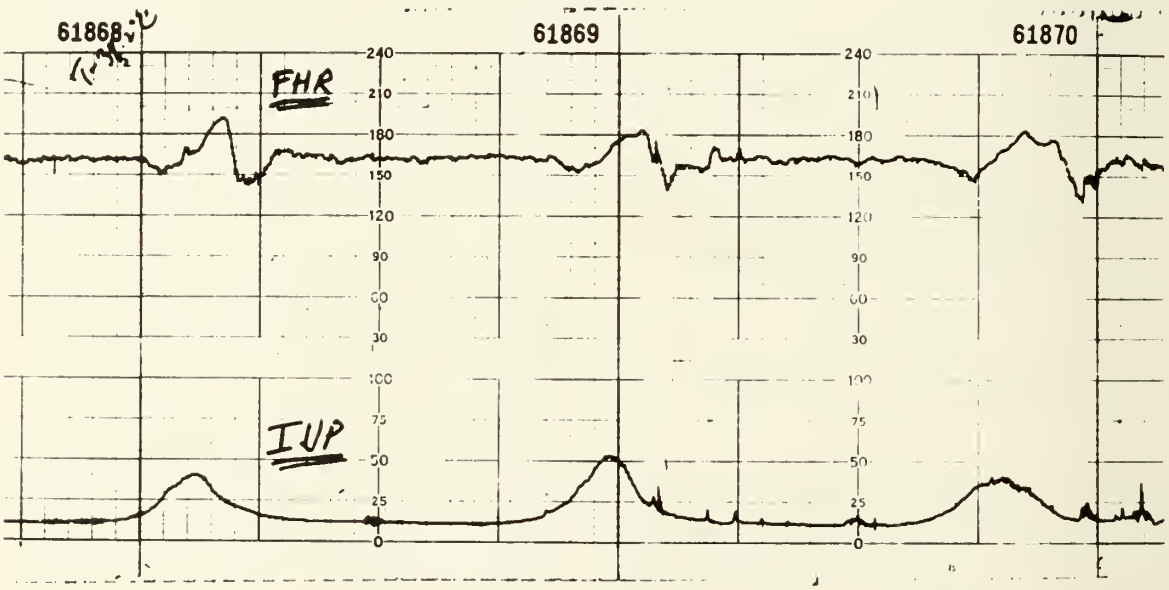

Figure 2. Late deceleration of the fetal heart rate during labor. FHR: Fetal Heart Rate. IUP: Intrauterine Pressure. The momentary reduction in fetal heart rate occurs 20-30 seconds after the peak of uterine pressure. The phenomenon in this patient is preceded regularly by early acceleration in fetal heart rate.

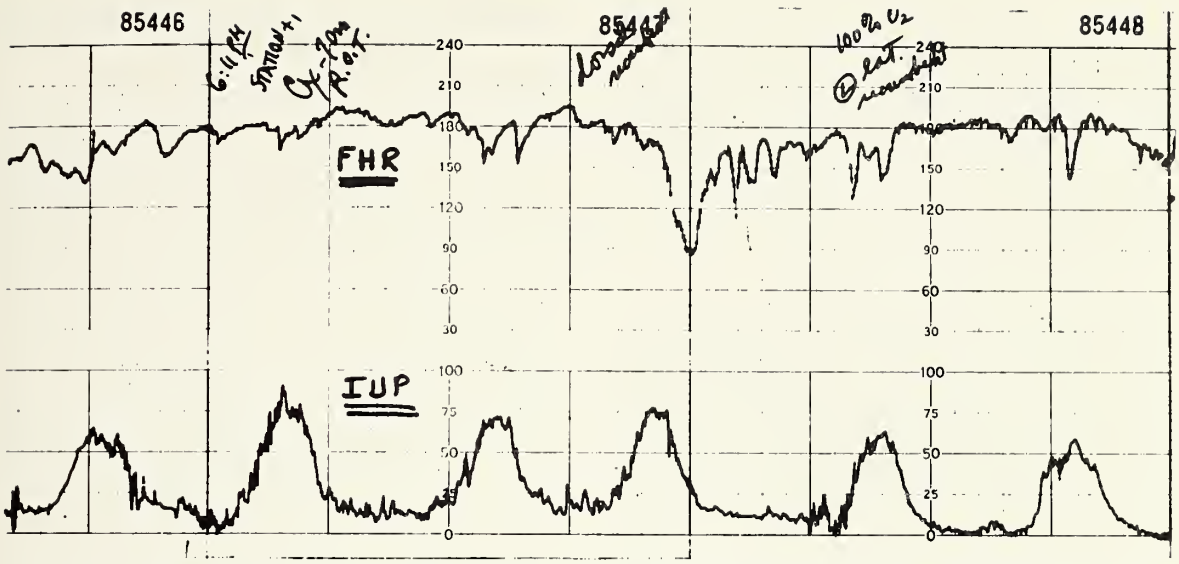

Figure 3. Variable deceleration of fetal heart rate during labor. Unlike early and late deceleration in fetal heart rate (in *Figures 1 and 2*), the phenomenon of variable deceleration in fetal heart rate is not synchronous with increases in intrauterine pressure.

heart rate (normally the variation is about +5 or −5 beats per minute) is associated with forthcoming antepartum death of the infant. The mild increase or reduction of fetal heart rate, in the amount stated, is thought to represent a normal reaction to the stress of labor.[13] Chronic asphyxia and metabolic acidosis probably prevent a homeostatic response.

Early deceleration of the fetal heart rate is frequently observed to be benign, but not always innocuous. Although fetal asphyxia probably does not cause the phenomenon, prolonged and severe early deceleration has been seen to accompany fetal electroencephalographic patterns which suggest cerebral ischemia, in the presence of normal pH and gas pressures in fetal systemic blood.[9] One may postulate, therefore, that late and variable decelerations result from fetal asphyxia, while severe early deceleration does not; but the increased fetal intracranial pressure associated with severe early deceleration may produce fetal cerebral ischemia.

However, it must be stated that late and variable decelerations of the fetal heart rate are definitely more ominous than the early variety. Hon's[14] experience shows that severe variable deceleration, and moderate and severe late deceleration, are associated with significant fetal acidosis (blood pH 7.20 or less). His data indicates fetal acidosis is infrequently observed with early deceleration, and mild and moderate variable deceleration. Although Beard's work is in basic agreement with Hon's data, his material suggests that late deceleration is associated only with mild fetal acidosis.[13] Beard showed, in fact, that loss of beat-to-beat variation and variable deceleration with tachycardia or bradycardia are associated with fetal acidosis of greater severity.

Although in Beard's collection of 151 infants demonstrating abnormal fetal heart rate tracings merely 17 had poor Apgar scores (below 7) at birth, and only 22 had pH values of 7.20 or less in scalp capillary blood during labor, these results do not render invalid the practice of fetal heart monitoring during labor. Fetal heart surveillance is akin to a screening method since it lends itself readily to wide employment and can be utilized more easily and conveniently than periodic sampling of fetal scalp capillary blood. The concentration of hydrogen ion in fetal blood will confirm or deny the impression gained during fetal heart monitoring.

In addition, 17 of 83 infants in Beard's paper with normal fetal heart rate tracings had poor Apgar scores, implying that significant numbers of asphyxiated fetuses may escape recognition when fetal heart surveillance is employed during parturition. However, none of the infants with poor Apgar scores were acidotic (pH 7.20 or less). Birth trauma, and sedatives or general anesthetics administered to the mother shortly before birth can cause depression of the fetal central nervous system and a poor Apgar score.[15, 16] It is probable, a low Apgar score will rarely be seen in newborn infants who have not been traumatized or anesthetized during parturition, and whose heart rate tracings were normal or close to normal.

It is, therefore, apparent that during labor, fetal scalp capillary blood pH is the final arbiter of asphyxia, at least when employing presently available methods of recognition. Very likely, the exception is when scalp capillary blood is not representative

of fetal cerebral blood, which can be the case when excessively increased fetal intracranial pressure produces persistent severe early deceleration of the heart rate and cerebral ischemia, which in truth is not asphyxia. Fetal electroencephalography may in the future, because of the present difficulty in recognizing impaired perfusion localized to the fetal brain, become the diagnostic method of choice during labor.

Management of Fetal Asphyxia

When fetal heart rate patterns suggest asphyxia, fetal scalp capillary blood must be sampled, unless the abnormality in heart rate is so severe as to obviate the need for confirmation with blood pH.[17] Scalp capillary blood pH, oxygen tension (pO_2), and carbon dioxide pressure (pCO_2) correspond well with values in fetal carotid artery blood; scalp capillary blood is representative of systemic blood.[18]

While preparations are being made for blood sampling: (1) the patient's position should be altered in an effort to reduce umbilical cord occlusion or compression of the maternal vena cava, should these be present; (2) 100 per cent oxygen gas, or 50 per cent oxygen-balance nitrogen may be inhaled by the mother. Wood[19] has shown that the pressure of oxygen in fetal blood can be increased from 15 to 20 mm Hg to 30 to 45 mm Hg after 10 minutes of oxygen inhalation; (3) If the patient is receiving intravenous oxytocin, the rate of infusion may be reduced and the fetal heart rate observed for improvement; (4) Maternal blood pressure should be determined and hypotension, if present, may be corrected by infusing isotonic fluids intravenously (or transfusing with blood if the patient is hemorrhaging). Ephedrine sulfate may be administered parenterally to increase cardiac output if conduction anesthesia is causing hypotension;[20] (5) The patient should be placed on a cooling blanket if she is febrile to reduce fetal body temperature (which in life is always greater than maternal temperature), fetal metabolic rate, and oxygen requirement.[21, 22] If the fetus is being asphyxiated and is severely acidotic (pH 7.20 or less) and if vaginal birth is not expected in 15 to 20 minutes and relief from asphyxia not obtained with the above maneuvers, abdominal delivery should be quickly performed.

If the pH of fetal scalp capillary blood is greater than 7.20 but less than 7.25, delivery can be delayed and sampling repeated in 15 minutes. When blood pH is 7.25 or greater, repeat sampling may be deferred for a longer period.[23]

Benefits From Fetal Heart Rate and Intrauterine Pressure Monitoring

In addition to reducing the number of infants dying because of asphyxia in utero, or surviving with impairment of the central nervous system due to the same cause,[24, 25] the other possible benefits of electronic and biochemical surveillance may be:

a) A diminution in the frequency of Cesarean sections

1) because of a reduction in the number of erroneously diagnosed cases (when using the fetoscope) of fetal asphyxia, and

2) by allowing time for vaginal birth (when fetal blood pH is greater than 7.20) when used in conjunction with fetal capillary blood sampling.[26]

b) A more confident utilization of intravenous oxytocin

1) in augmentation of labor in women with uterine inertia and in those undergoing a trial of labor to rule out fetopelvic disproportion, and

2) in elective or medically indicated induction of labor.

c) An effective and convenient aid for the teaching of obstetrics.

References

1. Page, E.; Villee, C. and Villee, D.: *Human Reproduction.* Philadelphia, W. B. Saunders Co., 1972, p. 371.

2. Billings, E.: Traumatic and anoxic births. *Med. J. Aust.* 2:1146, 1969.

3. Miller, J. and Myers, R. E.: Neurological effects of systemic circulatory arrest in the monkey. *Neurology* 20:715, 1970.

4. Greene, J.; Beargie, R.; Clark, B. and Smith, K.: Correlation of estriol excretion patterns of pregnant women with subsequent development of their children. *Amer. J. Obstet. Gynec.* 105:730, 1969.

5. Taylor, E. S.; Hagerman, D.; Betz, G.; Williams, K. and Grey, P.: Estriol concentrations in blood during pregnancy. *Amer. J. Obstet. Gynec.* 108:868, 1970.

6. Copher, D. and Huber, C.: Heart rate response of the human fetus to induced maternal hypoxia. *Amer. J. Obstet. Gynec.* 98:320, 1967.

7. Mann, L.; Prichard, J. and Symmes, D.: EEG, ECG and acid-base observations during acute fetal hypoxia. *Amer. J. Obst. Gynec.* 106:39, 1970.

8. Mann, L. *et al.:* The effect of metabolic acidosis on fetal brain function and metabolism. *Amer. J. Obstet. Gynec.* 111:353, 1971.

9. Mann, L.; Carmichael, A. and Duchin, S.: The effect of head compression on FHR, brain metabolism and function. *Amer. J. Obstet. Gynec.* 39:721, 1972.

10. Rosen, M. and Scibetta, J.: The human fetal electroencephalogram. *Amer. J. Obstet. Gynec.* 104:1057, 1969.

11. Greiss, F. and Anderson, S.: Uterine blood flow during labor. *Clin. Obstet. Gynec.* 11:96, 1968.

12. Myers, R. E.: Two patterns of perinatal brain damage and their conditions of occurrence. *Amer. J. Obstet. Gynec.* 112:246, 1972.

13. Beard, R.; Filshie, G.; Knight, C. and Roberts, G.: The significance of changes in the continuous fetal heart rate in the first stage of labor. *J. Obstet. Gynaec. Brit. Comm.* 78:865, 1971.

14. Kubli, F.; Hon, E.; Khazin, A. and Takemura, H.:

(Continued on page 52)

Incontinentia Pigmenti

A Case Report

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A case is reported of a female newborn with a rare developmental diffuse skin disease occurring with striking peripheral blood eosinophilia, the vesicular stage of incontinentia pigmenti (Bloch-Sulzberger syndrome). It is sometimes familial and affects females almost exclusively. Although other anomalies are reported in Bloch-Sulzberger syndrome, none has been found thus far in this infant.

INCONTINENTIA PIGMENTI (Bloch-Sulzberger syndrome), a disorder of skin and sometimes other organs, predominantly occurs in females and is thought to be a developmental polydysplasia of both ectodermal and mesodermal tissues.[7, 11] This disease, the most striking features of which are the skin manifestations, was first described in 1905 by Garrod.[5] Bardach described the disease in 1925 in a pair of monozygotic twins.[5] In 1928, Sulzberger reported in greater detail a case described by Bloch in 1925.[10]

Case Report

A female infant, the product of a normal-term pregnancy and delivery, weighed 2.82 kg (6 lb 4 oz). She appeared well at delivery, although a papulovesicular eruption containing yellow fluid was noted on her left arm. Treatment with various antibiotics was without effect on the skin lesions which continued to spread.

The baby was also noted to have some convulsions during this period. Her serum calcium value was 4.7 mEq/L and she was started on a regimen of calcium glutamate in feedings. The convulsions ceased after four days. A spinal tap at this time showed no cells and was negative for culture and smear. A blood culture was also negative. Because of the spreading skin disorder, she was admitted to Providence Hospital, Kansas City, Kansas, at three weeks of age weighing 6 lb 5 oz.

A negative family history for this type of skin disease was elicited. Physical examination revealed a well developed, fairly well nourished 3-week-old baby in no distress. With the exception of the skin, physical examination was entirely within normal limits.

Stages of a papulovesicular dermatitis were present over her abdomen, back, extremities, and forehead *(Figure 1)*. Newly formed vesicles appeared in other areas only to progress to scaly lesions the following day.

White blood cell (WBC) count ranged from 32,000 to 57,000/cu mm with differentials showing 33-77% eosinophils. Other laboratory values included: serum glutamic oxaloacetic transaminase (SGOT): 295 mU/ml (adult N: 15-40); lactate dehydrogenase (LDH): 475 mU/ml (adult N: 90-225. The hemoglobin, hematocrit, immunoglobulins, albumin, calcium, glucose, BUN, creatinine, total bilirubin, and alkaline phosphatase were normal for this age.

Viral studies of the skin isolated probable adenovirus which was not typable with standard antisera. Enterovirus and Coxsackie virus were not grown out. Viral and bacteriological cultures of the stools, throat washings, and nose were negative. A smear from one of the vesicles showed many vacuolated eosinophils.

Lesions on the right back and buttocks were biopsied. Microscopic examination of the specimens showed numerous intraepidermal vesicles containing remarkable numbers of eosinophils. A moderate number of eosinophils was found in perivascular areas and migrating into the epidermis. The well developed vesicles, which contained almost pure cultures of eosinophils, appeared to begin from intracellular edema. Some liquefactive degeneration of the basal layer was also present. In addition, there were small whorls of epidermal cells in the epidermis between the vesicles, as well as scattered large dyskeratotic cells with eosinophilic hyaline cytoplasm. There was a slight lymphoreticular dermal infiltrate *(Figure 2)*.

Such findings are consistent with the features of

From the Clinical Laboratory, Providence-St. Margaret Health Center, Kansas City, Kansas.

Figure 1. Arm and shoulder. Vesicular phase of incontinentia pigmenti.

Figure 2. Vesicle laden with eosinophils, dermal infiltrate, and focal small whorls of epidermal cells. H and E × 120.

the first phase of incontinentia pigmenti.

Discussion

In the classical case of incontinentia pigmenti the skin manifestations occur in four phases, although one or more phase or phases may overlap or be absent.

The first, vesicular, bullous, or inflammatory phase, is usually present at birth or immediately afterwards. Lesions usually develop on the trunk, scalp, and proximal portion of the extremities, and are arranged in transverse and longitudinal linear patterns on the trunk and extremities respectively. They do not follow cleavage lines or neurovascular distribution. There is often marked eosinophilia in the peripheral blood.[4-7] Histologically, this phase is characterized by the pattern described in the present report, well described in the literature.[1, 4, 6, 7]

The second, hypertrophic, hyperkeratotic, or verrucose, phase occurs during the first year in about one half of the patients,[5] and consists of solitary or linear lichenoid lesions developing at sites of previous vesicles. However, independent verrucose lesions may develop, especially on the distal extremities. These lesions usually last a few months, although some of the verrucoid lesions may remain for years, especially those of the feet. Histologic examination shows acanthosis, irregular papillomatosis, and hyperkeratosis. Areas of intraepidermal cornification consisting of whorls of squamous cells and scattered dyskeratotic cells may be present. The dermis may have a mild chronic inflammatory infiltrate with few or no eosinophils.[4, 6]

The third, or pigmented, phase is characterized by usually symmetrical sharp-edged, jagged, chocolate-brown, slate-grey, or tan areas of autochthonous melanotic pigmentation varying considerably in size and shape.[10] The lesions may cross the midline and do not follow cleavage lines or neurovascular distribution. Pigmentary lesions occur in approximately 40 per cent of the patients without preceding phase 1 or 2 lesions and, occasionally, are present soon after birth.[1, 5-7] Extensive deposits of melanin within melanophages occur in the upper dermis. In some lesions the amount of basal layer melanin may be decreased. The basal cells may be vacuolated and degenerated.[6] Some authors have concluded that the basal layer is unable to hold melanin and is, therefore, incontinent of the pigment.[8, 10] Rubin and Becker[9] indicate that the pigment is not necessarily postinflammatory and may be independent of other lesions.

Wong *et al.* found on electron microscopy of the pigmented papule stage that vacuolated cells in the

upper epidermis, often labeled dyskeratotic cells, are melanocytes containing giant vacuoles and myelin figures, structures not found in normal melanocytes. With regard to the pathogenesis of the excessive melanin in the dermis and basal layers, gaps were found in the basement membrane in patients with incontinentia pigmenti. Wong *et al.* postulated that such gaps may allow leakage of melanin into the dermis. They found a dendritic process of a melanocyte in the upper dermis, suggesting the possible direct discharge of melanin into the dermis via these processes.[11]

The fourth and final phase is that of involution. The pigmentation slowly fades and all skin changes may completely disappear. The fourth phase usually occurs in the second and third decade of life, although it may occur earlier.[1, 5, 7]

The phases vary inconsistently from patient to patient. In most cases, the inflammatory changes may be present for the first four months of life; the hypertrophic changes may last for about one year, and the pigmentation, which may persist into adult life, begins to fade at about six years of age. A patient at the age of approximately four to six months may have all three skin changes present.[5]

Although one half of the reported cases had extradermatological manifestations, in a recent series of four cases no associated congenital defects were found.[7] Anomalies of skin (nail dystrophy, atrophic alopecia,[10] follicular atrophoderma, supernumerary ears[2]), teeth (dental hypoplasia[2, 5, 9, 10]), nails (dystrophy[10]), eyes (retrobulbar glioma, strabismus,[10] keratitis,[2, 10] optic atrophy, nystagmus, cataracts, blue sclerae[2]), nervous system (microcephaly, mental deficiency,[2] epilepsy[2, 5–7]), skeletal system (including arthrogryposis multiplex congenita[9]) and other systems (high palate,[10] congenital heart disease,[2] urachal cysts[2]) are described. Dental anomalies are most common, and abnormalities of hair and eyes have been reported in about one-fourth of the cases.[5] The true incidence of the associated disorders is not well known in that many of the earlier reports of the disease were concerned only with the skin manifestations. The occasional reports of cardiac, limb, and bone anomalies have been considered too few to be statistically significant.[5]

A disproportionate number of females affected with incontinentia pigmenti has been reported. Gordon and Gordon[5] found only two well established cases of the disease in males. The disease has been reported in Orientals, Negroes, and whites. Morgan noted that incontinentia pigmenti has a reported definite familial incidence ranging from 15 to 40 per cent.[7]

Two theories have been proposed to explain the predominance of females. One theory considers the disease to be due to an autosomal dominant gene with sex-linked expression. With this pattern of transmission, one would expect to find some affected paternal female relatives. Such affected relatives have not been found thus far. Occurrence in males might be explained on the basis of increased susceptibility to this gene. A second theory suggests an x-linked dominant gene which would be lethal in all but a few males who are resistant to the gene. The large number of spontaneous abortions seen in families with disease supports the second theory, although the available data is too incomplete for adequate evaluation.[3, 5, 7]

References

1. Allen, A. C.: *The Skin. A Clinicopathological Treatise* (2nd ed.). New York, Grune and Stratton, 1967, pp. 682-684.
2. Carney, R. G.: Incontinentia pigmenti. A Report of five cases and review of the literature. *Arch. Derm. Syph.* 64:126-135, 1951.
3. Curth, H. O. and Warburton, D.: The genetics of incontinentia pigmenti. *Arch. Derm.* 92:229-235, 1965.
4. Epstein, S.; Vedder, J. S. and Pinkus, H.: Bullous variety of incontinentia pigmenti (Bloch-Sulzberger). *Arch. Derm. Syph.* 65:557-567, 1952.
5. Gordon, H. and Gordon, W.: Incontinentia pigmenti: Clinical and genetical studies of two familial cases. *Dermatologica* 140:150-168, 1970.
6. Lever, W. F.: *Histopathology of the Skin* (4th ed.). Philadelphia, J. B. Lippincott Co., 1967, pp. 86-88.
7. Morgan, J. D.: Incontinentia pigmenti (Bloch-Sulzberger syndrome). A Report of four additional cases. *Am. J. Dis. Child* 122:294-300, 1971.
8. Ringrose, E. J.: Incontinentia pigmenti. *Arch. Derm.* 92:336-337, 1965.
9. Rubin, L. and Becker, S. W., Jr.: Pigmentation in the Bloch-Sulzberger syndrome (incontinentia pigmenti). *Arch. Derm.* 74:263-268, 1956.
10. Sulzberger, M. B.: Incontinentia pigmenti (Bloch-Sulzberger). Report of an additional case, with comment on possible relation to a new syndrome of familial and congenital anomalies. *Arch. Derm. Syph.* 38:57-69, 1938.
11. Wong, C. K.; Guerrier, C. J.; Macmillan, D. C. and Vickers, H. R.: An electron microscopical study of Bloch-Sulzberger syndrome (incontinentia pigmenti). *Acta Dermatovener. (Stockholm)* 51:161-168, 1971.

Clinical Cardiology

His Bundle Recordings and Arrhythmias

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RECORDING of the His bundle electrogram has recently become established as a valuable diagnostic method in the critical differentiation between supraventricular and ventricular arrhythmias. Intracavitary His bundle electrograms were initially described in 1960 by Giraud and co-workers, but application of this technique in the clinical setting for arrhythmia diagnosis was introduced by Scherlag and associates in 1969. The technique is relatively simple because of the close anatomic relationship between the His bundle and the posterior leaflet of the tricuspid valve. Usually, a bipolar or tripolar catheter electrode is introduced into the femoral vein percutaneously and advanced into the right ventricle. Under fluoroscopic control, the catheter is then slowly pulled back until its tip is resting on the posterior leaflet of the tricuspid valve, a position from which His bundle potentials can be obtained readily. Alternatively, His bundle electrograms can be obtained from a cathetered tip adjacent to the noncoronary cusp of the aortic valve. However, this approach requires arterial puncture and, hence, is used only rarely.

Visualization of the His bundle potential requires special amplification and filtering equipment, as well as adequate grounding of the entire system. In general, the filters are chosen to include frequencies between 40 and 500 Hz. The His bundle potential is manifest as a bi- or triphasic deflection occurring after atrial and before ventricular depolarizations recognized by the P and QRS complexes on the simultaneously recorded electrocardiogram (ECG).

His bundle electrograms can be used to subdivide the P-R interval into PH and HV intervals. The PH interval (onset of the P wave on the ECG to the onset of the His bundle deflection) reflects the time required for intraatrial and A-V nodal conduction time. The HV interval (onset of His bundle deflection to the onset of the QRS complex on the ECG) is a measure of conduction time in the distal His bundle and bundle branches as well as their ramifications. Normally, the PH interval varies between 80 and 140 msec, and the HV interval varies between 35 and 55 msec. Prolongation of either interval signifies delay in conduction time in the corresponding regions of the conducting system.

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Verification of the His bundle deflection is established by determining its timing with respect to atrial and ventricular depolarization. These should be consistent. In addition, pacing from the catheter tip from which the His bundle deflection is recorded should produce QRS complexes which are indistinguishable from those seen with normal supraventricular beats.

His Bundle Recordings and A-V Block

First degree A-V block is electrocardiographically characterized by prolongation of the P-R interval exceeding 0.20 seconds. In general, in the absence of bundle branch block, prolongation of the P-R interval is due to PH interval prolongation reflecting A-V nodal conduction delay. On the other hand, first degree A-V block associated with bundle branch block is often due to prolongation of the HV interval alone, or HV and PH. It should be noted that HV prolongation, perhaps augering serious disease, may be present despite a normal P-R interval on the conventional ECG.

Second degree A-V block is classified as Mobitz type I (or Wenckebach) and Mobitz type II block. Usually (although not always), Mobitz type I is associated with conduction delay in the A-V node. On the other hand, Mobitz type II block generally reflects bilateral bundle branch disease. His bundle recordings have helped to clarify these distinctions. Since bilateral bundle branch block, especially that associated with acute myocardial infarction, is more prone to produce sudden death, the distinction in an individual case is far from academic.

At least three varieties of complete A-V block are recognized: (1) Block in the A-V node itself proximal to the His bundle in which His bundle deflections precede ventricular depolarizations and bear no relationship to atrial depolarizations; (2) Block distal to the His bundle characterized by the presence of His bundle spikes which closely and consistently follow atrial depolarizations but bear no relationship to the QRS complexes; (3) Block in the His bundle itself characterized by split His bundle deflections with two distinct His bundle spikes, H_1 and H_2, one of which is always associated with the atrial depolarizations and the other with the ventricular depolarizations. However, there is no consistent relationship between H_1 and H_2.

Ectopic Beats

Analysis of His bundle recordings may furnish useful information regarding the origin of ectopic beats. Atrial premature beats are characterized by an early atrial depolarization, a prolonged PH interval, a normal HV interval, and normal or aberrant QRS morphology on the ECG. Ventricular premature beats on the other are not preceded by His bundle depolarizations. His bundle depolarizations may follow ventricular premature beats because of retrograde conduction. Occasionally, premature depolarizations arise from the His bundle itself (previously called nodal premature beats). However, such beats may not be manifest electrocardiographically because of antegrade block and retrograde block beyond the A-V junction. Rather, they may instead simulate unexplained first or second degree A-V block because of concealed retrograde conduction and protraction of the apparent refractory period of the A-V node. Although this phenomenon, known as "pseudo atrio-ventricular block," was first described many years ago, it has been documented in man only recently, by Rosen and his associates.

Tachyarrhythmias

Recording of His bundle electrograms has been helpful in analysis of complex tachyarrhythmias, such as supraventricular tachycardia with aberrant conduction versus ventricular tachycardia. Again, QRS complexes in supraventricular tachycardia are preceded consistently by His bundle spikes while QRS complexes in ventricular tachycardia are not. His bundle recordings have shed light on the mechanism underlying some instances of supraventricular tachycardia. Recent evidence suggests that many of these tachycardias are due to reentry of impulses through a pathway incorporating the upper A-V nodal and low atrial regions.

The PH interval is more susceptible than the HV interval to the effects of pharmacologic agents. Atropine, isoproterenol, and diphenylhydantoin decrease the PH interval but usually exert no effect on the HV interval. Propranolol prolongs the PH interval but has no influence on the HV interval. However, other drugs such as procaine amide may prolong both the PH and HV intervals.

Stress of the Conduction System

Recognition of occult A-V nodal and sinus node dysfunction may be facilitated by stress of the conduction system by atrial pacing or acceleration of atrial rate with atropine while simultaneous His bundle recordings are obtained. The normal response to acceleration of atrial rate above 140/min is second degree A-V block of the Mobitz type I variety. Production of block at rates lower than this is indicative of A-V nodal dysfunction. Sinus node dysfunction can be unmasked by stress as well. Sudden cessation of atrial pacing at a rate of 130/min normally leads to initiation of sinus node impulses within one second (the sinus node recovery time). This interval is significantly prolonged in patients with sinus node dysfunction (the "sick sinus syndrome").

In summary, the technique of His bundle recording has been shown to be relatively simple and safe. It has already become an established means of obtaining clinically needed information useful in determining the nature of A-V block, the etiology of ectopic beats, the mechanisms underlying tachyarrhythmias, and the presence of occult sinus or A-V nodal disease in individual patients.

Vox Dox

Vox Dox Editor:

You will recall that the Food and Drug Administration's Bureau of Radiological Health has responsibility for developing and administering a radiation control for health and safety program as authorized by Public Law 90-602. Under that program, a radiation safety performance standard for diagnostic x-ray equipment was published on August 15, 1972, to become effective one year later.

The Bureau recently learned that some dealers have been advising physicians and other users that all existing x-ray equipment will have to be upgraded to meet requirements of the standard by the effective date of August 15, 1973. You may be able to perform a service for your readers by informing them that such advice is contrary to fact.

Upgrading of x-ray equipment now being used is not now required by the standard. State and territorial radiation control authorities have been asked by the Bureau to so inform equipment users and dealers.

Our communication to the States and territories made one other point. This was that, although equipment now in use will not have to be modified before the standard becomes effective, owners installing manufacturer-certified components in such x-ray systems after next August 15 must install components of the type called for by the Federal standard.

Additional information about the standard may be obtained from the Division of Electronic Products, Bureau of Radiological Health, Food and Drug Administration, 12720 Twinbrook Parkway, Rockville, Maryland 20852.

Sincerely yours,
JOHN C. VILLFORTH, Director
Bureau of Radiological Health

Student
THESIS

Multicentricity in Cancer of the Breast

RICHARD L. STRATTON, M.D.,* *Tucson, Arizona*

BREAST CANCER is the most common malignant tumor in women of middle age and beyond. Of the 600,000 newly diagnosed cancers per year, 65,000 are cancers of the breast. Until relatively recent years, there was little doubt regarding the surgical management of operable breast cancer. In the past two decades, the role of radical mastectomy has been challenged and lesser operations have been developed. The possibility of removing malignant breast tumors with a minimal amount of deformity is appealing. In the past, both surgeon and patient have accepted the deformity and discomfort resulting from radical mastectomy because it was the procedure thought to give the greatest likelihood of cure. At the present time, some authors are proposing local excision of the tumor mass in selected groups of patients as a primary, curative, surgical approach. They refer to scattered studies reporting excellent survival rates for patients treated in this manner. Undoubtedly, a major factor contributing to this is the patient's preference for local excision. The proponents of this approach often mention the lack of deformity and morbidity found after local excision. The deterrent factor is the possibility that following local excision residual tumor may remain in the breast. Furthermore, various physical and chemical agents have been combined with operations in an attempt to control the disease. The lack of any striking difference in the results of various regimens has led to the present fatalistic attitude of many regarding the role of any surgical treatment for breast cancer.

A recent Mayo Clinic study[1] of large numbers of patients summarized the present situation regarding factors affecting survival following the surgical treatment of breast cancer. The five- and ten-year survivals of the 1,204 patients undergoing radical mastectomy in the absence of axillary nodal involvement were 86.4 per cent and 71.4 per cent respectively. The five- and ten-year survivals after radical mastectomy in 967 patients with axillary nodal involvement were 52.7 per cent and 35.2 per cent respectively. No case could be made for or against simple mastectomy because it was used almost exclusively in high-risk patients with poor survival. The group of patients with no nodal involvement of tumor approached the survival curve for the normal population after the eighth postoperative year. The size of the primary breast lesion was of no importance in the survival of patients with no nodal involvement; however, in the presence of nodal involvement, large tumors were associated with significantly lower survival. Postoperative prophylactic irradiation was found to have no significant effect on survival rates, nor did the location of the lesion in the breast seem to exert any influence on survival. When age was considered, patients under 45 years of age with breast cancer generally had poorer survival rates than those over 45, regardless of nodal involvement or length of postoperative followup. Infiltrative, ductal type (scirrhous) carcinoma was found in about three-fourths of the cases.

A study by Bell[2] indicated a relationship between nuclear grade of the tumor and patient survival. Pa-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Stratton is serving his internship at the Tucson Medical Center.

tients with nuclear grade I had a five-year survival rate, considerably better than the group of patients with nuclear grade III. The grading of the nuclei was based on a spectrum with grade I at one end characterized by large and pleomorphic nuclei with prominent nucleoli, and grade III at the other end characterized by small, regular nuclei with barely visible nucleoli. The difference in survival rates was still significant even when the existence of lymph node metastases was considered.

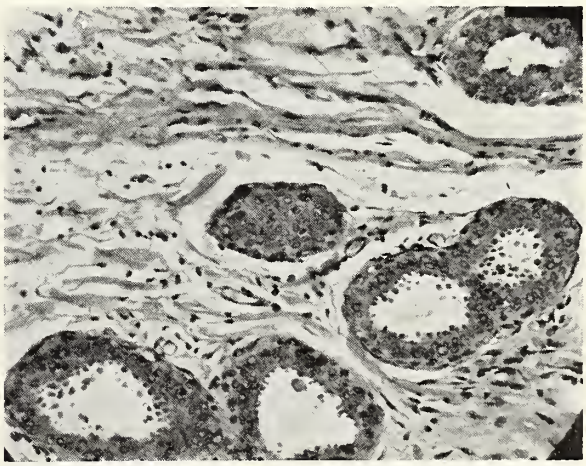
Local extirpative treatment has not been generally accepted because of the likelihood of residual malignant tissue remaining in situs. As early as 1944, Slaughter[3] made the observation that malignant tumors often have multiple sites of origin, and that cancer in general is not simply an isolated biological accident in cell growth but frequently cancer is a whole organ disease. The situation is illustrated by the following case recently seen at the University of Kansas Medical Center.

Case Report

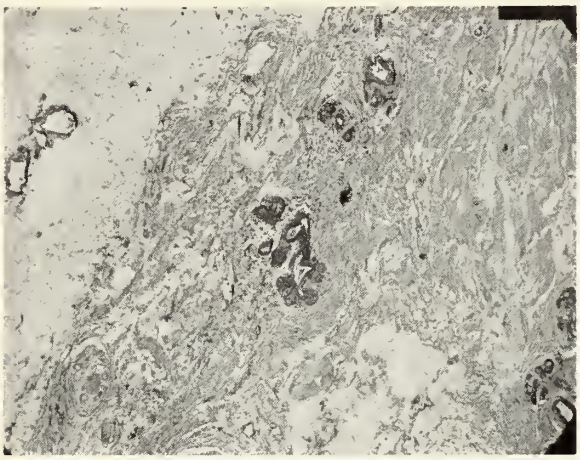
A 45-year-old white female saw her local physician with the chief complaint of a small lesion, beneath the nipple, in the right breast. She had occasional tenderness of the lesion but denied any nipple discharge. She was referred to the University of Kansas Medical Center. The past medical history included a subtotal thyroidectomy for lymphocytic thyroiditis in 1968. The family history, social history, and review of systems were noncontributory. Physical examination of the right breast showed a 0.5 x 1 cm hard, freely movable, nontender, irregular nodule below the nipple with slight retraction of the overlying skin. The left breast was free of detectable abnormality, and the axillae were free of masses or lymphadenopathy. There was a moderate anemia with hemoglobin of 9.9 gm per cent. The roentgenogram of the thorax was within normal limits. The patient was operated on on February 8, 1971. There was an excision biopsy of the mass in the right breast. Frozen section revealed carcinoma of the breast. A classical right radical mastectomy was completed. The patient had an uneventful postoperative course and has done well since that time.

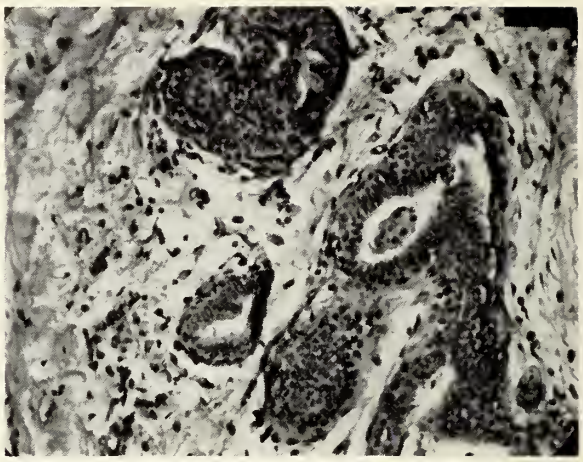
In the pathology report, the microscopic examination of the palpable mass revealed nests and strands of tumor cells invading fibrous and adipose tissue. Focally the tumor cells formed ductal structures. The diagnosis of this section was invasive carcinoma involving the central area *(Figures 5 and 6)*. Sections taken randomly from the four quadrants of the breast revealed tumor involving the upper outer and lower inner quadrants. These sections were described as having bland monotonous cells with large round nuclei that obliterated terminal ducts. The diagnosis in these sections was lobular carcinoma in situ *(Figures 1-4)*. The axillary lymph nodes were reported to be free of tumor cells (0/18).

The discovery that this patient had occult carcinoma in situ in areas of the breast which were considered completely normal clinically, evoked interest concerning the incidence of multiple sites of origin of breast carcinoma. A consecutive series of cases with surgically treated breast carcinoma were reviewed to determine how confident the surgeon should be in assuming that carcinoma in the breast is limited to the palpable mass. Of 122 charts reviewed, 92 reports of the pathologist were suitable for determining whether multiple sites of origin were present. Thirty of the charts reviewed were cases that had been treated surgically in hospitals other than the University of Kansas. Consequently, the microscopic descriptions were not available for these cases. Eight (8.7%) of the reports indicated



Figures 1 and 2. This section is from the upper outer quadrant of the removed breast and demonstrates terminal ducts obliterated and enlarged by bland, monotonous cells with large round nuclei. The diagnosis is lobular carcinoma in situ.

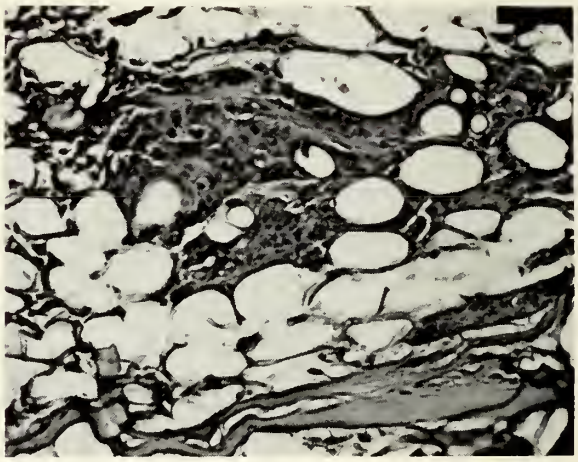




Figures 3 and 4. This section is from the lower inner quadrant of the removed breast and has the same microscopic appearance as the section from the upper outer quadrant. The diagnosis is lobular carcinoma in situ.

two or more independent foci of carcinoma. In examining other factors in these eight cases it was found that there was no correlation between multifocal origin of carcinoma and axillary lymph node involvement. Patient age and tumor location in the breast also failed to demonstrate any effect on multifocal origin in this series. Since only eight cases were found to have multifocal origin, no valid conclusions can be made about the possible influences of age, location, or nodal involvement. Haagensen[4] briefly mentions this phenomenon of multifocal origin and estimates the incidence to be approximately 5 per cent. However, Qualheim and Gall[5] in 1957 carried out careful microscopic examination of 157 mastectomy specimens and found more than one nidus of cancer in 54 per cent of the specimens. In 37 per cent of the specimens, opposite portions of the breast were involved by unconnected tumors. In more than one-fourth of the breasts investigated, varied histological patterns were observed in either single or independent lesions. It was not reported whether any of the patients had more than one clinically palpable mass, but the independent cancers were usually microscopic in size and, therefore, not suspected clinically.

The difference between 8.7 per cent at the University of Kansas and 54 per cent reported by Qualheim and Gall is a significant difference and requires explanation. After studying the reports of the pathologist and investigating the routine procedure for examining specimens obtained from radical mastectomy at the University of Kansas, the explanation became obvious. Nearly every specimen at the University of Kansas was divided into quadrants with only a section from each quadrant being examined microscopically. If the tissue was normal when examined grossly, tumor and lymph nodes were described in the pathology report. However, Qualheim and Gall carefully examined multiple sections of each quadrant of the breast rather than just representative



Figures 5 and 6. This section is from the biopsied mass and shows nests and strands of tumor cells invading fibrous and adipose tissue. The diagnosis is invasive carcinoma.

sections. In addition, it should be mentioned that Qualheim and Gall made a prospective study in which they were looking specifically for multiple foci of carcinoma.

Further evidence that the reported incidence of multifocal origin is directly related to the diligence with which the specimens are examined, is found in a recent study by Gallager and Martin.[6,7] Radical mastectomy specimens were prepared by, first, removing the axillary tissue and searching for nodes in the usual manner. Then, the breast was divided into three blocks, each 5 to 7 cm thick and fixed, dehydrated, infiltrated, and embedded in paraffin. Some 10 to 15 sections were cut at 0.5 mm intervals. All but a few of the breasts contained primary carcinoma less than 5 cm in diameter.

Of the 47 breasts containing invasive carcinoma, 22 (46.8%) showed multiple invasive sites. Several of the specimens revealed multiple invasive sites separated by wide distances. Most of the invasive nodules were demonstrated to lie directly on the course of a duct which itself showed hyperplasia or carcinoma in situ. In one common form of breast carcinoma, the multiplicity of invasive sites is important in the enlargement of the mass. The lesion enlarges as a result of the coalescence of contiguous lesions.[6] In stellate carcinoma the increase in size is apparently the result of gradual extension of the central lesion. Its star-shaped configuration results from progressive infiltration from the ducts which radiate from the central mass. Gallager and Martin speculated that the difference between the two types may be one of growth rate, or of age at onset, or both.

For various reasons, more conservative approaches in the treatment of breast cancer have been advocated. Mustakallio[8] reported treating carcinoma of the breast by local extirpation and postoperative radiation. He cited the psychological and functional sequelae of radical surgery to be reason for more conservative therapy in selected cases. Of 127 patients, he reported 107 (84%) lived five years or longer, and his opinion is that extirpation of the tumor followed by radiation therapy results in no greater recurrence rate than cases treated by radical operation. Mustakallio emphasized that the removal of the tumor must be performed by careful dissection, leaving only sound tissue.

In 1965, Crile[9,10] added the location of the tumor as a restriction which he felt necessary in the selection of patients for local excision of breast cancer. His study concluded that in special situations when there are important emotional factors to consider, it is possible to select peripherally located lesions that can be excised locally with confidence that the survival rate will be as high as after radical operations.

Taylor[11] has recently reported on sector mastectomy, or modified local excision of the growth, as an alternative procedure to more radical management. He followed and recorded the five- and ten-year survival rates of 77 patients. All had been diagnosed clinically as stage I or II and, therefore, underwent sector mastectomy with postoperative irradiation to the breast and axilla. A maximum diameter of 5 cm was generally taken as the upper limit for tumor size to be excised by sector mastectomy. The five-year survival was 71 per cent, and the ten-year survival was 50 per cent. Although the author acknowledged that the study suffered from some disadvantages, he stated that in view of his findings there is nothing to suggest that survival from cancer of the breast treated by sector mastectomy and radiotherapy is any worse than after more radical primary surgical treatment. Taylor stated also that the aesthetic results of sector mastectomy were generally satisfactory.

Porritt[12] felt that results of local excision of breast cancer were sufficiently favorable to raise doubts about the justification for more radical operations. His study, showing a 65 per cent five-year survival rate for patients treated by local excision, led him to argue in favor of giving more consideration to local excision.

In view of the high incidence of multifocal origin of breast carcinoma, the reported survival rates for patients treated by local excision are high. Partial explanation may be related to the careful selection of patients for local excision. A lesion diagnosed as breast carcinoma early in the course of the disease is more likely to be considered for local excision. If an occult carcinoma were present in the same breast, clinically unsuspected, it may require a prolonged period of time before becoming overt. The reports on local extirpation of breast carcinoma are small series of cases. Their statistical correlation and validity should be questioned. Since the reports of results on local excision are based predominantly on five-year survival rates, it is possible that further followup will reveal poorer survival rates at the tenth and fifteenth postoperative year.

Simple mastectomy, removing the entire mammary gland, would theoretically be a curative operation for breast carcinoma when no lymph nodes are involved. However, Hicken[13] stated that entire removal of the gland is seldom accomplished. He supported this statement with a study of 17 mastectomy specimens which were injected with a solution of methylene blue. The results revealed that in 94 per cent of cases, mammary tissue had been left attached to the reflected skin flaps; in 75 per cent of all the cases studied there were multiple areas of incomplete removal. Haagensen[1] stated that carcinoma often extends widely throughout the breast tissue,

so that in attacking carcinoma of the breast the surgeon must remove at least all of the mammary gland. This result is accomplished by carrying dissection to the peripheral limits of the gland, including the midline of the sternum medially, the edge of the latissimus dorsi muscle laterally, and above to the clavicle.

The incidence of multifocal origin of breast carcinoma is much higher than generally recognized. The type of microscopic examination necessary to determine the true incidence is not practical on a routine basis and is not generally completed. This conclusion is supported by the data presented in this paper which show an incidence of only 8.7 per cent on routine examination at the Kansas University Medical Center. Careful examination, however, in two different studies reports the incidence to be 46.8 per cent and 54.0 per cent respectively. The demonstrated presence of cancer in the breast in areas distant from the palpable tumor would suggest that treatment by local excision is hazardous.

This phenomenon of multifocal origin may or may not be related to bilaterality in breast carcinoma. Although bilaterality is known to have an increased incidence,[14] leaving one breast intact while the other is removed is not equivalent to leaving ipsilateral breast tissue where carcinoma was known to exist. Whether the multiple foci are actually lymphatic extension or multicentric tumors is purely academic, as it is of no comfort or benefit to the patient to be left with cancer, metastatic or primary.

Summary

The surgical procedures of local excision would eliminate the complications of morbidity, deformity, and psychological sequelae that may accompany radical operations. The condition permitting local excision is that the carcinoma be removed in its entirety leaving only normal breast tissue. It is the conclusion of this paper that the incidence of nonpalpable, multiple foci of breast carcinoma is such that carcinoma would be remaining in a dangerously high percentage of breasts treated by local excision as the primary approach. Based upon evidence presented, it is not possible to justify treating a patient with breast carcinoma by local excision of the palpable tumor as the primary surgical approach.

References

1. Payne, W. S.: Surgical treatment of breast carcinoma. *Arch. Surg. (Chicago)* 101:105, 1970.

2. Bell, J. R.: Prognostic significance of pathologic findings in human breast carcinoma. *Surg. Gynec. Obstet.* 129:258, 1969.

3. Slaughter, D. P.: Multiplicity of origin of malignant tumors: Collective review. *Internat. Abstr. Surg.* in *Surg. Gynec. Obstet.* 79:89, 1944.

4. Haagensen, C. D.: *Diseases of the Breast*, ed. 2. Philadelphia, W. B. Saunders Company, 1971, p. 381-382.

5. Qualheim, R. E. and Gall, E. A.: Breast carcinoma with multiple sites of origin. *Cancer* 10:460, 1957.

6. Gallager, H. S. and Martin, J. E.: Early phases in the development of breast cancer. *Cancer* 24:1170, 1969.

7. Gallager, H. S. and Martin, J. E.: The study of mammary carcinoma by mammography and whole organ sectioning. *Cancer* 23:855, 1968.

8. Mustakallio, S.: Treatment of breast cancer by tumour extirpation and roentgen therapy instead of radical operation. *J. Fac. Radiologists* 6:23, 1954.

9. Crile, G.: Results of simplified treatment of breast cancer. *Surg. Gynec. Obstet.* 118:517, 1964.

10. Crile, G.: Treatment of breast cancer by local excision. *Amer. J. Surg.* 109:400, 1965.

11. Taylor, H.: Sector mastectomy in selected cases of breast cancer. *Brit. J. Surg.* 58:161, 1971.

12. Porritt, A.: Early carcinoma of the breast. *Brit. J. Surg.* 51:214, 1964.

13. Hicken, N. F.: Mastectomy: A clinical pathologic study demonstrating why most mastectomies result in incomplete removal of the mammary gland. *Arch. Surg.* 40:6, 1940.

14. Schwartz, S. I.: *Principles of Surgery*. New York, McGraw-Hill Book Company, 1969, p. 409-417.

The Value of Monitoring

(Continued from page 42)

Observations on heart rate and pH in the human fetus during labor. *Amer. J. Obstet. Gynec.* 104:1190, 1969.

15. Sherman, R.; Cabell, B. and Clark, R.: Sparine-demerol-scopolamine analgesia for labor and delivery. *J. Arkansas Med. Soc.* 67:293-296, 1971.

16. Clark, R. *et al.:* Neonatal acid-base studies, effect of normal labor and obstetric manipulation. *Obstet. Gynec.* 33:23, 1969.

17. Saling, E.: *Foetal and Neonatal Hypoxia in Relation to Clinical Obstetric Practice.* Baltimore, Williams & Wilkins Co., 1968, p. 121.

18. Adamsons, K.; Beard, R. and Myers, R. E.: Comparison of the composition of arterial, venous and capillary blood of the fetal Rhesus monkey during labor. *Amer. J. Obstet. Gynec.* 107:435, 1970.

19. Newman, W.; McKinnon, L.; Phillips, L.; Paterson, P. and Wood, C.: Oxygen transfer from mother to fetus during labor. *Amer. J. Obstet. Gynec.* 99:61, 1967.

20. Zilianti, M. *et al.:* Fetal heart rate and pH of fetal capillary blood during epidural anesthesia in labor. *Obstet. Gynec.* 36:881, 1970.

21. Adamsons, K.; Gandy, G. and James, L. S.: The influence of thermal factors upon oxygen consumption of the newborn human infant. *J. Pediat.* 66:495, 1965.

22. Adamsons, K.: The role of thermal factors in fetal and neonatal life. *Pediat. Clin. N. Amer.* 13:599, 1966.

23. Grimwade, J.: The management of fetal distress with the use of fetal blood pH. *Amer. J. Obstet. Gynec.* 106:266, 1970.

24. Beard, R.: To signal fetal distress during labor: pH monitoring. *Med. World News* 13:72, 1972.

25. Paul, R.: Clinical fetal monitoring. *Amer. J. Obstet. Gynec.* 113:573, 1972.

26. Paul, W.; Gare, D. and Whetham, J.: Assessment of fetal scalp sampling in labor. *Amer. J. Obstet. Gynec.* 99:745, 1967.

The President's Message

Councilor District Meetings

Mrs. Graham, Mr. Agin and I have completed our tour of the state. It was a great pleasure to meet with all of you and your wives. Thank you very much for inviting us; you are very gracious and we were exquisitely treated.

Two big things remain in my mind.

One—you all seem to be striving to find a way to come closer together, and you *do* want your medical society to succeed in its endeavors.

Two—I want to suggest that my successors would find it profitable to have these meetings earlier, possibly prior to taking office. In this way, they would know what you feel and need before half the year has passed.

This is a great state, and you are wonderful people.

Kenneth L. Graham MD

President

In the Spinal Analysis

Among the irritative lesions that afflict the body medical, none is more persistent in its chronicity and resistance to therapy than the dubious art of chiropractic. The physician, having made what he deems an eminently accurate diagnosis of this condition and having prescribed the obviously specific therapy, is dismayed to find that it shows not the slightest inclination to disappear. He is further frustrated to find that the legal and political consultants he has called in (against his better judgment) have concluded that the condition is really quite proper and he must learn to live with it.

Orthodox medical practice has a bifid character. It is based on positive scientific fact—when this can be demonstrated. Beyond this, there is an equally important area determined by deeply personal and intuitive elements, and referred to as the art of medicine. The chiropractor blithely ignores the scientific element and relies on a pseudoscientific jargon which he equates with the art of medicine, and seems to convince a sufficient segment of the population that, in this area at least, he is on a par with the orthodox physician. His affront to the physician is compounded by the fact that he has assumed unto himself an academic title totally without educational justification but so well established in the public mind that this specious titular equality leads many people to believe that he is really a specialized physician. This is probably the smartest thing he ever did.

The medical profession has sought to exorcise this changeling by proving his lack of scientific basis, by publicizing his deficiencies, by exposing his charlatanism and avarice. The most that has been accomplished has been the imposition of a licensing procedure (under standards of the chiropractor's own devising) which, for whatever control it places on him, paradoxically bestows the public blessing and admits him to the healing arts fold.

Since the physician's rational efforts to eliminate chiropractic have failed, perhaps the problem should be approached from the other direction: the recipient of the service. Instead of trying to eliminate the purveyor, perhaps we should give more thought to the consumer. If chiropractic has survived, this of necessity indicates that someone is utilizing it. Who chooses to ignore what we deem to be incontestable fact? Who seeks a service fraught with direct and indirect dangers? At a time when consumers are crying out against a whole spectrum of real and imagined threats to their well-being, who are the consumers who seek a service which has many times over been demonstrated to be at best valueless and at worst profoundly dangerous, albeit the law protects its existence?

We admit not having made a scientific study of these individuals (editorializing is an art, too) but a few possibilities come to mind. First, there is a group which might be termed medical antagonists. These people have some grievance against orthodox medicine: an unsatisfactory result in some medical encounter; an excessive medical fee; antipathy for the image of organized medicine or some individual physician. In consulting the chiropractor, they are satisfying some self-obligation to seek medical care and are at the same time striking a double blow at the physician: withholding themselves as patients and seeking someone of whom he would disapprove. The charges against chiropractic only make them more active in its defense. They are, of course, defending themselves as well. They respond to reports of dangerous chiropractic techniques with reports of grievous medical results (and cite the words of qualified medical experts quoted in the press). The reports of excessive chiropractic fees hardly need rebuttal—everyone knows physicians charge too much and all are wealthy.

Initially, these individuals are not so much *for* the chiropractor as *against* the medical physician, but soon become militantly alert to any attempt to curtail chiropractic activities with highly vocal and visible responses in the letters columns and legislative halls. They have a faint recollection of high school science courses so they are susceptible to the pseudoscientific pronouncements of the chiropractor, accepting the

belief that orthodox medicine is on the totally wrong track as he can clearly demonstrate by his full-length x-ray or the report of the flashing, buzzing, tingling machine in the corner.

Then there is the group which regularly consults legitimate physicians for medical care but intermittently visits the chiropractor just to have things put back in place. Individuals in this group presume a wisdom of medical matters by which they can determine which practitioner to visit for which disability. In a showdown, they would probably choose the physician but meantime they enjoy the benefits of both, the chiropractor apparently occupying the position of a high-powered masseur. Listed among the sometime patients of chiropractors have been numerous well-educated and highly placed people, persons who could be presumed not to accept the erroneous basis of chiropractic but nonetheless avail themselves of the physical consequences. Fortunately, they are in a position to get proper medical care when needed, but unfortunately they are apt to consider that chiropractic is well controlled and should be allowed to continue its current level of activity, hence they will not assist—may even resist—efforts toward its removal.

Not to be overlooked is the social aspect of the chiropractor's office. We have not observed it first hand, but have received reports that there is often an air of camaraderie among the individuals assembling for their periodic treatments. They are united by this common bond and the reinforcement derived tends to counter any doubts that may develop as to the efficacy of the treatments. This is akin to the social milieu encountered in lobbies of the health spas, where symptoms and the relative virtues of the various waters are discussed at length. It is reflected in the health food groups, where social identification is reinforced by the knowledge that they are the true believers who know the real secret of good health. But, tragically, these are the individuals who may be enjoying social fulfullment while neglecting serious disease.

Geography enters into the picture, too. Individuals have long traveled great distances seeking chiropractic care as a result of the fantastically successful advertising techniques for which it is noted. The distance makes the treatment all the more worthy and attractive (a concept not unknown in legitimate medical practice). But a significant number of people consult chiropractors for the reason that they cannot travel great distances, from lack of means or capability, but seek out the chiropractor who is locally available rather than the physician who is not. It is even argued that the chiropractor should not be eliminated, for these people would then have *no* medical care—on the same basis, apparently, that a polluted water source should not be removed, for then there would be *no* water.

Thus, the list grows and we have no idea where it might end. Our idea of looking at the consumer of chiropractic service doesn't seem to have brought us any closer to a solution. In fact, one gets the inescapable feeling that until there are some changes in human nature, there is no need to keep fighting chiropractic on a rational, scientific basis for, even if it were eliminated, it would be replaced by some similar exploitation of the human need for attention.—*D.E.G.*

114th Annual Session

Kansas Medical Society

May 6-9, 1973

Holiday Inn Plaza, Wichita

Make Your Reservations Now!

KMS Obituaries

MARY GLASSEN, M.D.

Dr. Mary Glassen, of Phillipsburg, died December 23, 1972 at the age of 70. She was born November 4, 1902 in Phillipsburg.

Dr. Glassen was graduated from the Washington University School of Medicine in 1930, and practiced in Phillipsburg since that time.

Surviving Dr. Glassen are her husband, a daughter, and a son. A memorial fund for the Kansas Council for Children and Youth has been suggested, with contributions accepted by the First National Bank, Phillipsburg.

LEO E. HAUGHEY, M.D.

Dr. Leo E. Haughey, 85, of Concordia, died November 22, 1972 in Monterey, California. He was born August 6, 1887 in Wellington.

Dr. Haughey was graduated from the Kansas Medical College of Topeka in 1908. After postgraduate work at Glasgow, Scotland and Vienna, Austria, Dr. Haughey established medical practice in Concordia, where he practiced for over fifty years.

Survivors include his wife and two sons.

JOHN W. HERTZLER, M.D.

Dr. John W. Hertzler, 66, of Newton, died December 8, 1972. He was born May 9, 1906 in Burlington, Iowa.

Dr. Hertzler was graduated from the University of Iowa School of Medicine in 1930.

Surviving Dr. Hertzler are his wife, a daughter, and a son.

ROBERT H. MOORE, M.D.

Dr. Robert H. Moore, of Leavenworth, died November 26, 1972 at the age of 72. He was born January 6, 1900 in Nelson, Nebraska.

Dr. Moore was graduated from the University of Nebraska School of Medicine in 1930.

Survivors include his wife and a daughter.

AMA House of Delegates

Summary of Actions Taken at the 26th Clinical Convention, Cincinnati, November 26-29, 1972

Of the many resolutions and policy statements that were considered by the AMA House of Delegates in November 1972, the following are here repeated for the purpose of emphasis.

PSROs

The AMA will "provide a dominant role of leadership in the implementation of the PSRO program to assure that the best interests of the public and the profession are preserved," the House decreed, in adopting Report Z of the Board of Trustees and the Council on Medical Service. The issue of PSRO—Peer Standards Review Organization—was number one at the convention.

A lengthy plea by one delegate that the House defer action on Report Z—which he called a "complete reversal of our policy"—was rejected. Report Z noted that while PSRO legislation was pending in Congress, the AMA questioned whether its emphasis on cost control might not lead to a lowering of the quality of medical care. But since it is now law, the report said, AMA should act to guard the interests of the public and the profession.

An AMA Advisory Committee on Professional Standards Review will be created by the Board of Trustees. It will include members of the Board and Council on Medical Service. In addition, the Board may invite other appropriate organizations to participate.

Among responsibilities of the Committee are these:

1. To provide input from the medical profession in the development of rules and regulations which will govern the PSRO program.

2. To assist state medical associations, or state medical associations in concert with county societies, in developing PSROs and to recommend structures and operating mechanisms for such organizations.

3. To aid in defining appropriate geographic boundaries for PSROs, especially where more than one state may be involved.

In addition to the eight areas of responsibility outlined in Report Z (including the above), floor amendments added several more which would have the Committee:

Develop and distribute information about PL 92-603 to constituent societies; monitor the effect of PSRO on medical care, and report to each future House session; and instruct the House and state societies on procedures to follow "whenever rules and regulations interpreting the law and published in the Federal Register seem to be contrary to the spirit of the law as written."

Address of the President, Carl A. Hoffman

The major problems, Dr. Hoffman said, are protecting Americans from financial ruin due to catastrophic illness, and the maldistribution of physicians as it affects the inner city and rural areas.

"But we in the US appear to be sadly deficient in insurance coverage for catastrophic illness," the AMA president said. "No one in this affluent nation should suffer financial deprivation or bankruptcy because of serious illness or accident."

As for maldistribution of doctors, Dr. Hoffman offered what he called "perhaps a revolutionary suggestion" on how to get physicians into rural areas: A "strictly voluntary" program under which needy students could get a medical education with state or federal financing, by signing an unbreakable contract to practice in needy areas for three or four years. He would have no option to repay the loan in cash.

To control the program, medical societies and licensing boards could grant temporary licenses, allowing the physician to practice only in the designated community. After the period of service was completed, the physician would get complete licensure.

In regard to doctor shortages in the inner city, Dr. Hoffman said, "It is possible that part of the solution may lie in neighborhood health centers."

Budget

"In considering the budget for 1973, the Board of Trustees made a determined effort to exercise fiscal restraint, and to allocate our financial resources according to priority needs," the Board said in Report A. The budget summary anticipates 1973 gross revenues of just over $37 million and operating expenses of $36,322,000, leaving a projected surplus of about $800,000.

Fiscal restraint action taken by the Board included the termination of four councils and six committees. One resolution sought to rescind termination of the Council on Drugs, but the House instead adopted a substitute resolution. That measure, says the Board, shall continue to use "all appropriate AMA resources and methods indicated, to the point of establishing

a committee, if necessary, to delineate clearly the independent AMA policy on drugs and drug therapy."

Another economy action was making specialty journals available on subscription only, starting January 9. *Prism*, the AMA's new socioeconomic publication, will be sent as a membership benefit, along with *JAMA*.

Young Physicians

The Council on Long Range Planning and Development will be expanded to include one intern and resident member of the AMA as a full voting Council member, the House decided. That member is to be appointed by the Speaker of the House, who subsequently announced that he intends to name Dr. John Mather of the University of Maryland Hospitals, outgoing chairman of the Interns and Residents business session, to the post.

For the first time in the history of the AMA, a medical student took his seat in the House of Delegates. He is George Blatti of Minneapolis, a senior medical student at the University of Minnesota Medical School. In another action, the House set annual dues for student AMA members at $15.

IRS Ruling

The House was informed that an Internal Revenue Service ruling—which barred physicians from withdrawing voluntary contributions to their Keogh Law plan prior to disability or age 59½—will be revised to permit withdrawal of such contributions made to a qualified plan prior to March 6, 1972. The AMA had vigorously protested the ruling, and delegates complimented AMA staff for its "prompt and effective action."

LUCIEN R. PYLE, M.D., Topeka
JOHN C. MITCHELL, M.D., Salina
AMA Delegates

Journal on Microfilm

Microfilmed copies of current as well as all back issues of the JOURNAL are available through University Microfilm Services, a subsidiary of Xerox Corporation. The 35 mm film fits all standard viewers and provides the JOURNAL in miniature at a savings on binding and storage costs. Write for information or send orders direct to University Microfilm Services, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

25th Annual

MIDWEST CANCER CONFERENCE

For Physicians

"CONQUEST OF CANCER—THE TEAM APPROACH"

THURSDAY APRIL 5

Thursday Morning Session

9:15 a.m.—"Radiotherapy of Hodgkin's Disease" Luis Delclos, M.D.
9:45 a.m.—"Tracer Studies in the Diagnosis of Brain Tumor" Henry N. Wagner, M.D.
10:15 a.m.—"Soft Tissue Tumors" Gerald Fine, M.D.
11:00 a.m.—"Advances in Chemotherapy for Control of Malignant Diseases" Emil J. Freireich, M.D.
11:30 a.m.—Question and Answer Panel

Thursday Afternoon Session

1:15 p.m.—"Tracer Studies in Other Neoplasms" Henry N. Wagner, M.D.
1:45 p.m.—"Surgical Treatment of Carcinoma of the Thyroid" Bentley P. Colcock, M.D.
2:15 p.m.—"Diagnosis of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
3:00 p.m.—"Perfusion and the Treatment of Melanoma of the Extremities" Edward T. Krementz, M.D.
3:30 p.m.—Question and Answer Panel

FRIDAY APRIL 6

Friday Morning Session

9:15 a.m.—"Use of Cancer Chemotherapeutic Agents in Non-Neoplastic Diseases" Thomas C. Hall, M.D.
9:45 a.m.—"Treatment of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
10:15 a.m.—"Clinical Experiences with Immunotherapy of Melanoma" Edward T. Krementz, M.D.
11:00 a.m.—"Surgical Treatment of Carcinoma of the Colon" Bentley P. Colcock, M.D.
11:30 a.m.—Question and Answer Panel

Friday Afternoon Session

1:15 p.m.—"Supportive Therapy for the Intensively Treated Patient" Emil J. Freireich, M.D.
1:45 p.m.—"New Concepts in Early Detection of Cancer" Thomas C. Hall, M.D.
2:15 p.m.—"Radiotherapy of Gynecological Cancer" Luis Delclos, M.D.
3:00 p.m.—"Tumors of the Head and Neck" Gerald Fine, M.D.
3:30 p.m.—Question and Answer Panel

QUESTION AND ANSWER PANELS

Professional films shown from 8:00 a.m. to 9:00 a.m. each morning.

WICHITA, KANSAS **CENTURY II CIVIC CENTER** APRIL 5-6, 1973

The Medical and Scientific Committee of the Kansas Division of the American Cancer Society invites all physicians in the entire Midwest to attend a two-day graduate course on cancer. Free registration. 16 hours of A.A.F.P. credit.

The D. C. Line

Editor's Note: Our Editorial in the December issue expressed the feeling that the Kansas Medical Society would profit by maintaining contact with Representative Bill Roy, both as a source and interpreter of political activities on the national medical front. Accordingly, we are initiating a monthly column written by Dr. Roy. It is hoped that this will not only provide the service intended, but invite a response of readership either through the JOURNAL or to Dr. Roy directly.

Dr. Gray's editorial, "The Opportunity," expressed extremely well a series of thoughts with which I agree.

Among the points made were the observation that we have just completed another biannual flurry of political hyperbole, and that about to be dished up is a tremendous meal of federal health legislation. Our Editor further opined that he did not think that the physician "should have the sole voice in creating the legislative implements which will produce the new system."

Importantly, he continued, "His (the physician's) professional expertise should be the prime source of information and concept upon which legislation is based."

Nearly all members of Congress and nearly all physicians agree with this statement. This is the prime reason that I may disproportionately influence any federal health legislation. I was frankly delighted about a year ago to hear a veteran Republican Congressman state flatly, "If it is about health, I am going to ask Doc Roy, and if he says it's all right, I'll go along." Only three of us in the Congress—Dr. Tim Lee Carter, Dr. Tom Morgan, and I are in the position of being called "Doc" and often deferred to.

The other aspect of professional expertise as a prime source of information is that while we physicians in Congress may have once had professional expertise, we are hard put to keep it up to date and renewed. And this is where the editorial gets at the heart of the matter, communication between individual Kansas physicians and this legislator. I see this exchange of information and opinion as an absolute necessity if I am to do as satisfactory a job as possible. I feel that my roots in private practice and my background in local and state medical society activities are of extreme importance in writing legislation. But this background will fade into insignificance (or worse) if continuous communication does not exist.

Writing a column will be a useful exercise for me and a source of information and opinion for you. But I must hear from you if there is to be true communication. All of this is not to deny that there has been communication. Most society officers and many staff members and individuals have gone the second mile in an attempt to aid and advise. Some have even advised, with feeling, that I return to practice and stop fouling up an already bad situation.

Simply said, we have a better chance of satisfactory health legislation if we exchange information and ideas. I appreciate "The Opportunity."

To do any extensive crystal ball gazing at this time would be unwise. The ball is fogged over. There is a greater change of top personnel within the Department of Health, Education, and Welfare than usually occurs with a change of parties at the Executive level. There have been leaks of information that the Regional Medical Program will be phased out, that Comprehensive Health Planning funding will be decreased, and so on. There are rumors that federal health programs will be discontinued and special revenue sharing with the states will be substituted. But there is no official information, and a presidential health message may be weeks away.

It is significant that I speak of awaiting Executive proposals. For the past several years, the Executive branch of government has been the source of most proposed legislation. Congress has merely accepted, rejected, or at most, modified such proposals. Congress has the constitutional power to do otherwise, but it has to this time had neither the will nor the resources to do otherwise.

There is a mood in Congress to reclaim some of the power lost to the Executive branch. At the moment, this represents much less than the will to do so.

Health legislation, including the renewal of titles of the Public Health Service Act encompassing RMP, CMP, Family Planning, and a dozen other programs, will be directly affected by this impending collision between legislative and executive powers.

But the true significance of the legislative-executive power struggle far exceeds the determination of the health legislation of this year or next. The result of the struggle will determine whether appropriated funds can be impounded or diverted; whether programs can be distorted or discontinued. One may well agree with nearly every action of this President and cheer every move he makes. To date, I have generally supported his health legislation. But we must each realize that if we establish a constitutional monarchy, the next president may act in a manner not in our individual or collective interest. If we put all power in the hands of one man, we have no guarantee of wisdom or benevolence.

I fear great centralization of government and the continued building of great bureaucracies not responsive to the needs of the people. I fear even more

(Continued on page 62)

Medical-Legal Page

LIABILITY FOR BLOOD TRANSFUSION VIOLATING RELIGIOUS BELIEFS

If hospital and physicians gave a blood transfusion in violation of a patient's religious convictions they would be liable for violation of the patient's constitutional rights, a federal trial court in Illinois ruled. On the other hand, a conservator appointed by a probate court magistrate for the purpose of authorizing the blood transfusion shares the immunity from suit possessed by the magistrate who appointed him.

A 20-year-old married man was taken to the hospital after suffering injuries in an accident. He informed the physicians that his religious convictions precluded his accepting needed blood transfusions.

The physicians were unable to persuade members of the patient's family, including his wife, brother, sister, and parents, that he should have a transfusion. The patient and his wife signed a form releasing the physicians from liability in performing surgery without use of blood transfusions.

Four hours after the patient's arrival at the hospital, he lost consciousness. The physicians and hospital then allegedly conspired to have the probate court declare the patient incompetent as a minor and to appoint a conservator for the purpose of authorizing a transfusion. Under Illinois law, an incompetent is defined as a person incapable of managing his person because of physical incapacity.

The magistrate declared the patient an incompetent and appointed a conservator for the purpose of consenting to surgery, blood transfusion, medicine, and drugs. After receiving authorization from the conservator, the hospital directed the physicians to give a transfusion, knowing that such act violated the patient's religious convictions.

After the patient died, his wife, as administrator of his estate, brought action against the conservator, the hospital, and the physicians, charging violations of the First Amendment guarantee of freedom of religion. She also asserted that they conspired to deny the patient and his family the notice and hearing required by statute to determine whether he was a neglected minor or whether the transfusion was a medical necessity.

Before the state may restrict a person's religious beliefs, it must show it is acting to prevent grave and immediate danger to interests it may lawfully protect, the court said. A mere rational basis was not sufficient for the state to restrict the free exercise of religion.

The court said a state-appointed conservator's ordering of a transfusion in violation of a patient's religious beliefs would violate the First Amendment's freedom of exercise clause if no substantial state interest could be shown. However, the court upheld the conservator's contention that he was not liable for his actions because of the doctrine of judicial immunity, even if he did deprive the patient of constitutionally protected rights.

The conservator was appointed with specific directions as to his course of conduct and was given no discretion. Granting his motion to dismiss, the court said the conservator was entitled to the same immunity as the magistrate who appointed him.

The hospital and physicians contended that even if they denied the patient a constitutional right, they did not do so under color of state law and thus were not liable for damages under the Civil Rights Act. The patient's wife contended that because of state and federal tax exemptions and receipt of state and federal funds the hospital should be construed as being an arm of the state for purposes of the First Amendment and the Civil Rights Act.

Reviewing previous decisions, the court noted that when a party was licensed by the state and subject to regulations as to its operations, the actions of that party were under color of state law. Therefore, the court concluded that any action taken by the hospital to deprive a patient of his civil rights must be deemed as state action and the hospital was liable under the Civil Rights Act for any constitutionally prohibited actions.

The physicians contended that resolution of the issue of state action with regard to the hospital was immaterial as to them. The court held that they acted as agents of the hospital, which was charged with state action, and therefore must take on the responsibilities of the hospital, which was incapable of acting except through the use of agents.

Accordingly, the court denied the hospital's and physicians' motions to dismiss the case. The suit against the hospital and the physicians was therefore eligible for trial.—*Holmes v. Silver Cross Hospital of Joliet, Illinois*, 340 F.Supp. 125 (D.C., Ill., Jan. 17, 1972)

BLOOD TRANSFUSION REFUSED ON RELIGIOUS GROUNDS

Where a child's life is not immediately imperiled, the state does not have an interest of sufficient magnitude to outweigh a parent's refusal of permission for surgery because of religious beliefs, the Pennsylvania Supreme Court ruled.

Reprinted from *The Citation*, Vol. 25, No. 11, 1972, published by the Office of the General Counsel, American Medical Association. Copyright, 1972, American Medical Association.

A boy born on September 10, 1955, had two attacks of poliomyelitis that generated problems of obesity. He also suffered from paralytic scoliosis, with 94 per cent curvature of the spine. Because of his spinal curvature, the boy became a "sitter" and was unable to stand or ambulate due to collapse of his spine. Without treatment, he was in danger of becoming a bed patient.

Physicians recommended a spinal fusion to relieve the bent position of the boy's spine. Although she knew the operation was dangerous, the boy's mother gave her consent to surgery on the condition that there be no blood transfusions because she was a Jehovah's Witness. She also rejected the suggestion that the boy's own blood, obtained by periodic bleeding, be used for needed transfusions.

The Director of the State Hospital for Crippled Children filed a petition seeking a judicial declaration that the boy was a neglected child and requesting the appointment of a guardian. After an evidentiary hearing, the court dismissed the petition. On appeal, the trial court reversed the judgment and remanded the matter for appointment of a guardian.

The question on appeal was whether the state may interfere with a parent's control over a child in order to enhance the child's physical well-being when the child's life is not in immediate danger and when such interference conflicts with the parent's religious beliefs. The court was of the opinion that the state did not have an interest of sufficient magnitude to outweigh a parent's religious beliefs when the child's life was not imperiled.

The court also believed the wishes of the boy, who was 16 years old, should be ascertained. The most important question, the court said, was whether a parent's religious views were more important than the decision of the child, which might be contrary to that of the parents. The court cited cases where the rights of children were considered by the court and pointed out that the preference of an intelligent child of sufficient maturity is considered in determining custody. Reserving a decision regarding a possible parent-child conflict, the court remanded the matter for an evidentiary hearing in order to determine the boy's wishes.

In a dissenting opinion, one judge said that to presume that a boy who had been under the direct control and guidance of his parents all of his life could make an independent decision as to what was best for his health and welfare was not reasonable. He also did not believe the boy should be confronted with a choice between the wishes of his parents and their religious convictions on the one hand and a chance for a normal healthy life on the other. He felt the trial court's order should be affirmed.—*In re Green*, 292 A.2d 387 (Pa.Sup.Ct., June 28, 1972)

Editor's Note: A prior proceeding in this case was reported in *The Citation*, Vol. 25, No. 2, p. 17.

POSTGRADUATE MEDICAL EDUCATION

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

Symposia:

THE MENTALLY HANDICAPPED CHILD—February 28, 1973

This program is planned for physicians, nurses, educators, clergymen, and other professional people. Offered at Great Bend, Kansas.
Fee—$7.00.

DENTAL ANESTHESIA

March 1 and 2, 1973

Presented in cooperation with The School of Dentistry, University of Missouri at Kansas City, this symposium is directed primarily to practitioners of dentistry, but also of interest to anesthesiologists and maxillofacial surgeons.

Guest Faculty:

MORGAN L. ALLISON, D.D.S., Ohio State University College of Dentistry.
CHARLES V. BEESLEY, D.D.S., University of Missouri at Kansas City.
JOHN O. BRANFORD, M.D., University of Oregon School of Medicine.
JAMES E. HERBERTSON, D.D.S., University of Missouri at Kansas City.
JAMES D. JONES, M.D., D.D.S., Washington University School of Medicine, St. Louis.
HAMILTON B. G. ROBINSON, D.D.S., University of Missouri at Kansas City.

Subjects to be discussed will include:

Office dental analgesia, particularly the use of nitrous oxide.
Intravenous tranquilizers and hypnotics.
Anesthesiology as a dental specialty.
Programming in dental anesthesia education.
Fee—$65.00

PEDIATRICS

March 12, 13 and 14, 1973

This course is designed to provide the pediatrician with a comprehensive look at new developments in pediatric hematology and oncology. The course is scheduled to cover a major area each day: anemias, coagulation and malignancies. Emphasis will be placed on the relation of recent experimental data to the newer technics for diagnosis and management of clinical problems. There will be ample opportunity for discussions with the faculty not only as a group, but individually.

JAMES J. CORRIGAN, JR., M.D., University of Arizona Medical Center, Tucson.
AUDREY E. EVANS, L.R.C.P. and S.E., Children's Hospital of Philadelphia.
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IRVING SCHULMAN, M.D., Stanford University Medical Center.
JOSEPH V. SIMONE, M.D., St. Jude Children's Research Hospital, Memphis, Tenn.
Fee—$90.00

For program announcement and information, write:
Department of Postgraduate Medical Education
University of Kansas Medical Center
Kansas City, Kansas 66103

Woman's Auxiliary

. . . Annie decides how to make Indians out of the Chiefs

Annie took a little time out during the holidays to formulate some thoughts about organizations and how to make them better. This was after she was so organized at home that she managed to bang up the fender on her new car and run her daughter's wristwatch through both the washer and the dryer. A few incidents like these made her think she had better stop trying to do so many things around the old wigwam and turn some of the work over to the other Indians on her reservation.

It's a dead cinch that too many chiefs and not enough Indians can muddy up the waters and cause enough confusion that everyone begins to get on the warpath and nothing gets done, whether at home or somewhere else. With this in mind, she did a little thinking about some of the rules from the Delaware Indian country up in northeastern Kansas where she comes from, and decided some of them might apply to the state and county Auxiliaries. She decided that the problem with all organizations, whether it's a medical Auxiliary or a medical society, a civic organization, or maybe just your own private wigwam or council room (that's your office, doctor!) boils down to "how do we make useful Indians out of all the chiefs?"

After thinking this over awhile to avoid thinking about the watch she washed and the fender-bender, Annie came up with these ideas that might help in almost any organizational situation.

Avoid treaties that contain blackmail: convince your people they have something to offer you, so that everyone is helping, not just a few doing all the work.

Don't be gun-shy: if your nominating committee or projects committee is about to make a serious mistake, shoot, Luke, and tell 'em!

Brainwash your captives: clue in the board and the members early about the importance of your projects, whether it's legislation, safety, health education, or any of the other spotlight areas.

Do a little war dance: put your best foot forward. Learn to advise and run a meeting with competency. Stay competent by self-improvement, reading the best that's available to you, and keeping up with pertinent information.

Keep those smoke signals going: keep in touch with your leaders by copying and sending them important documents or information. Maintain frequent contact with your tribal elders: your state, national, and regional officers. That way, when you fall on your face occasionally, they'll not be able to say they didn't know what you were up to.

Hold target practice: let every meeting or conference be another opportunity to have your goals made clear.

Keep sharpening your arrows: if you're going to have anything to shoot with, somebody has to come up with the ammunition. Wise up your members that it takes a little money and time to accomplish something worthwhile. But sometimes the best weapons don't produce the best marksmen, so make everyone pitch in for the good of the tribe.

But whatever you do, don't go on the warpath and gather up your papoose (or your squaw) and leave the reservation!

Yours for lots of wampum to AMA-ERF this year,

Auxiliary Annie

The D. C. Line

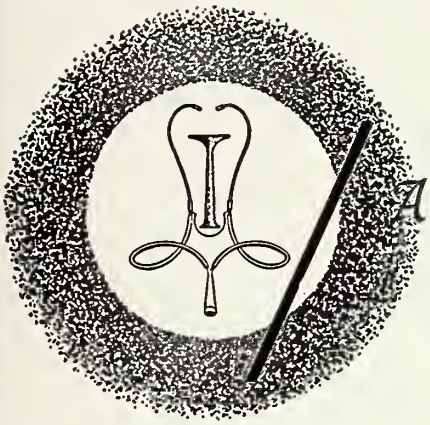
(Continued from page 59)

the centralization of power not just in the hands of a central, federal government, but in the hands of one man. I do not see the power struggle (if the Congress even struggles) as a struggle between centralization and decentralization of governmental power, or as a struggle between political parties, or as a conflict of personalities. I see it, instead, as a struggle to preserve the balance of power among three coequal branches of government, and a struggle to reassert the power of the Congress in order to assure ourselves and generations to come that we will not be the subjects of a president with the power to implement his wishes and whims whatever they may be.

It must be said that Congress is not a guiltless party in the flow of power to the Executive. We have directly transferred power by legislation, and we have indirectly transferred power by archaic practices and procedures paralyzing Congress and giving the Executive little choice but to act. If we establish an all powerful Executive, nearly all fault lies with the Congress. If there is to be a significant reversal of the flow of power, the Congress will have to reform itself from within and be more responsive to the people from without to achieve that reversal.

All health legislation for this 93rd Congress must be viewed in the context of this impending collision (or the presently accomplished fact of the ascendency of the Executive).

Having set forth what I believe is the most significant business of this Congress, I will discuss specifically health maintenance organization legislation in the March JOURNAL—*W.R.R.*



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

Feb. 23 — American College of Physicians, Kansas Regional Meeting. Holiday Inn Downtown Plaza, Wichita.

MARCH

Mar. 29-31 — National Conference on Urologic Cancer, Shoreham Hotel, Washington, D. C. Write: American Cancer Society, 219 E. 42nd, New York 10017.

APRIL

Apr. 1-4 — American College of Surgeons Annual Spring Meeting, Americana and Hilton Hotels, New York. Write: S. Frank Arado, 55 E. Erie, Chicago 60611.

Apr. 9-12 — American Academy of Pediatrics Annual Spring Session, Sheraton Boston Hotel, Boston. Write: AAP Public Information, 1801 Hinman Avenue, Evanston, Illinois 60204.

POSTGRADUATE COURSES

University of Kansas:

Mar. 12-14	*Pediatrics*
Mar. 26-28	*Surgery*
Apr. 2-4	*Ophthalmology*
Apr. 13	*Infectious Diseases*
Apr. 23-25	*Anesthesiology*

For further information, write the Department of Postgraduate Medical Education, K.U.M.C., Kansas City, Kansas 66103.

University of Chicago:

Feb. 7	*Gastrointestinal Bleeding*
Mar. 7	*Nutrition in Prophylaxis and Therapy*
Apr. 11	*Advances in Neurological Diagnosis and Treatment*
May 9	*The Acutely Injured Patient*

For details, write the University of Chicago, Frontiers of Medicine, Room 404, Culver Hall, Chicago 60637.

University of Colorado:

Feb. 6-10	*Seminar on Newborn Radiology*
Feb. 21-24	*Surgery of the Hand*
Mar. 5-10	*(Repeat of January GP Review)*
Apr. 9-11	*Treatment in the Emergency Department*
Apr. 12-14	*Clinical Dermatology*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver 80220.

University of Illinois:

Mar. 5-10	*Laryngology and Bronchoesophagology*
Mar. 26-29	*Neurotology*

For details, write the University of Illinois Medical Center, Department of Otolaryngology, 1855 W. Taylor, Chicago 60680.

University of Miami:

Mar. 19-22 — *Pediatric Cardiology*

For details, write the University of Miami School of Medicine, Division of Continuing Education, PO Box 875, Miami 33152.

University of Texas:

Mar. 15-16 — *Problems of Office Pediatrics*

For details, write the University of Texas Medical Branch, Galveston 77550.

The Kansas Medical Society—1972-1973

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Volume LXXIV, Number 3—March, 1973

The JOURNAL of the KANSAS MEDICAL SOCIETY

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Twenty-Seventh Annual University of Kansas School of Medicine Issue

The Dean's Letter—1973

The University of Kansas Medical Center

WILLIAM O. RIEKE, M.D.,* *Kansas City, Kansas*

WARMEST GREETINGS from the University of Kansas Medical Center and from all in the Rieke family. It is difficult to believe that another year has already passed since last I wrote to you in this JOURNAL. The past twelve months have been more than filled with gratifying activities of all kinds. Perhaps best among these has been the opportunity my family and I have had to travel widely in our state and become acquainted with so many of you, the physicians, families, and friends of Kansas. Much yet remains to be done to extend our circle of acquaintances and through this to increase our understanding of the health care needs of all. We are anxious to continue this.

During the last year, progress has been made at the Medical Center on a variety of fronts. We have created, staffed, and implemented an administrative Table of Organization which should make us more responsive both to present demands and to those much greater ones we see coming in the near future. The organization is not the traditional one of most medical centers where one person, *e.g.*, a dean, is expected to be all things to all people. Rather, we have analyzed the main activities of the Medical Center and have then appointed an individual bearing the title and authority of full dean for each function. So, for example, we have a Dean for Faculties and Academic Affairs, a Dean for our Wichita State University Branch, a Dean for Clinical Affairs, a Dean for Medical Center Administration, and others. Each of these has executive authority within his own area, and each reports to me and has his efforts coordinated with those of the others by myself. While this administrative organization is not the typical one, we believe it is a good one because: (1) it allows choosing administrative officers whose specific talents are in their respective areas rather than expecting one dean to be interested and expert in all areas; (2) it gives complete executive and decision making authority within each area to the dean, so that he can discharge his responsibilities with a minimum of delay; and (3) it provides an opportunity for complete overview and coordination of center-wide activities by myself. Specific descriptions of the responsibilities of each officer as well as the complete Table of Organization have been filed with the executive office of the Kansas Medical Society, should any of you wish further information.

Of course, the area of progress which has been of greatest interest to all relates to our plans to train and retain more physicians and other health care professionals for Kansas. You will recall that last year I wrote of our plans to: (1) expand the size of our medical class; (2) develop a clinical branch of the University of Kansas Medical School at Wichita State University; (3) build new basic science and clinical buildings in Kansas City in order to accommodate increased numbers and training of a variety of health professionals, as well as upgrade our capability for delivering superior clinical care; and (4) establish programs for training house staff as well as medical students in communities outside of Kansas City. While I will provide some detail concerning each of these areas below, I want to preface those comments by an expression of *enthusiastic and most genuine gratitude* to you and to all members of the legislative and executive branches of our state government for the understanding of our goals and the totally dedicated support of them that have been demonstrated.

Concerning increased numbers of medical and other students at our Medical Center, there was an alltime high enrollment this past fall of 1,687 individuals following courses of study in a wide variety of health professions. In medicine, the freshman class had been held at about 125 per year until 1971, when we admitted 144. We did this by emergency and improvised measures which we have extended even further now that it appears that relief in terms of new buildings and more faculty is imminent. Specifically, in 1972, ten more freshmen were admitted, bringing the entering class to 154, and this summer (1973) we plan to admit another nine, for a total of 163 freshmen. In spite of this increase in our class, more applications for medical school from Kansas residents were received this year than ever before, and more qualified Kansans will not be able to be admitted than ever before. Clearly, our plans for further expansion to 200 freshmen per year must be (and are being) expedited.

* Vice-Chancellor for Health Affairs, the University of Kansas Medical Center, Kansas City, Kansas 66103.

Relative to the Wichita State University Branch of the University of Kansas School of Medicine, it is reassuring to be able to say that it has received legislative sanction and support, and that faculty recruitment is progressing well. In addition to Dr. D. Cramer Reed, who continues as dean of the branch, chairmen in each of the new departments of family practice, obstetrics and gynecology, surgery, and pediatrics have now been appointed. Chairmen in medicine and in psychiatry will be named soon. It is currently planned that the first contingent of students—about 16 in number—to be assigned to receive their clinical training in Wichita (after doing their basic science work in Kansas City) will arrive in January of 1974. After this beginning just a few short months away, the numbers will be increased so that by 1977 about 60 students each year will be assigned to our Wichita branch for the clinical portion of their training leading to the MD degree. Already, however, the University of Kansas Medical Center is supporting significant numbers of residents and interns in Wichita through the branch operation there. Several hundred thousand dollars in house staff stipend support have already been directed from KUMC's budget in support of this phase of the branch activities, and more will be used in this manner soon.

Concerning the plans for new buildings and remodeling of existing ones in Kansas City, we are gratified that the schematics and preliminary architectural drawings for both the new basic science building and the clinical facility have been approved by the State Board of Regents. A $5,096,000 federal grant has been won to help support the cost of the basic science building. Matching state funds in the amount of $1.2 million are currently awaiting legislative approval, and I believe they will be forthcoming. In the new clinical building, there will be extensive and modern ambulatory care areas, comprehensive diagnostic and supportive facilities such as radiology, clinical laboratories, and others for the whole center, a surgicenter, and about 334 new beds which will emphasize intensive and specialized care, including a comprehensive head trauma unit. Funding of the new clinical building is currently being planned by a combination of state appropriation and the issuance of revenue bonds. This approach, I believe, is much more economical for all than was our previous plan which, though feasible, was to underwrite the total cost with revenue bonds. We are optimistic that by the time you are reading these words enabling legislation will have been adopted to fund this building according to the present plan. It is expected that if all proceeds according to current schedule, the new basic science building will be completed by spring of 1975, and the clinical building in mid-1977. When these are finished and remodeling is accomplished, the total bed complement at your Medical Center will be about 800, and its student body will number in excess of 2,000.

With regard to our plans to extend our training programs for house staff to communities outside of Kansas City, I am most pleased to be able to say that in addition to the major effort underway in Wichita, a very significant pilot program is now active in Garden City. Specifically, surgical and medical residents or interns are now receiving a portion of their training in Garden City under the supervision of local physicians there who have been given faculty appointments on our Medical Center staff. We think this program should do much to help young physicians become acquainted with the *community practice* of medicine, and also should encourage some to remain in Kansas for a life time of practice. It is planned to extend this program to several other Kansas cities in the year ahead.

Finally, a few specific notes of activities and progress at KUMC.

1. The new Burn Center, which will provide 11 beds for sophisticated care of the critically burned, will open in June or July of this year. With this, a service not otherwise available within 250 miles of Kansas City, will become operative.
2. Plans are well developed for a major reorganization of our training programs in nursing and allied health. Full school, rather than departmental status, is envisioned for each and new, improved programs are under development.
3. Your Medical Center formally applied on February 1, 1973 to the federal government to become one of the nation's 12 to 15 major interdisciplinary cancer research and demonstration centers. While we will not know for a few months what the result of our application will be, if it is funded, a new and most comprehensive interdisciplinary program in cancer research, education, and care will become available.
4. New chairmen have been recruited in our Department of Medicine (Dr. Norton J. Greenberger) and our Department of Pediatrics (Dr. Burton Dudding). We anticipate that soon a permanent chairman for the new Department of Radiation Therapy will be named. Total full-time faculty in all programs at KUMC have increased by more than 40 during the last year, to number now slightly over 400.

There is much more that could and ought to be said. Omission of any specific area from this letter does not imply that it is unimportant, but only that so much has occurred that all cannot be reported.

Through and in this all we *feel, appreciate* and *continue to need* your support. Thank you and very best regards!

Educational Approach

Teaching Health Care Professionals

ROBERT G. PIERLEONI, Ed.D.,* *Kansas City, Kansas*

TRADITIONALLY, the three functions of KUMC or any academic medical center have been: (1) to teach health professionals their craft; (2) to provide health care services to the community in which the center is located; and (3) to conduct medical research and, thereby, contribute to the advancement of medical science and the improvement of health care. The reputation of a medical center such as ours is essentially based upon the degree to which its faculties and staff develop in terms of professional education, service, and research. There is no question that all three functions must be served. However, this is most appropriately accomplished in an atmosphere which permits, nay nurtures, the inexorable interrelationship and interdependence between and among these three major functional interests. No single function can or should dominate at the expense of the others.

Because education is a major function of KUMC, it seems appropriate to provide a rational approach for the design, delivery, and assessment of our many educational programs. The scope of these educational programs and their impact on the resources of the medical center can be realized when one recognizes that some 1,500 students are presently enrolled here in a wide variety of degree and non-degree programs. These programs include: doctor of medicine; masters and doctoral programs in anatomy, biochemistry, microbiology, pathology, pharmacology, physiology, and in speech and hearing; masters programs in nursing and in dietetics and nutrition; baccalaureate programs in medical technology, nursing, and physical therapy; certificate programs in inhalation therapy, nurse anesthesiology, cytotechnology, radiologic technology, radiological engineering, medical record administration, and practical nursing; and intern and residency programs, and post-doctoral fellowships.

The remainder of this paper is a description of the instructional model the Department of Health Sciences Education promotes and uses in providing input to the educational programs at KUMC.

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There are several approaches to designing instruction, including many that are similar to the one described below. This approach is based on the assumption that the learner is and should be paramount in our thinking as we design and conduct our teaching. That is, we should be teaching students, not teaching anatomy, physiology, nursing, physical therapy, medical technology.

The instructional design model consists of four components, each representing a product or a series of products. *Figure 1* presents the four components of this model in the sequence in which they are developed in the design of a quality instructional system.

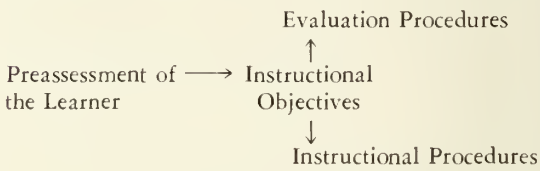

Figure 1. An instructional design model.

For purposes of simplicity and continuity, all of the examples below concern medical students and the MD program. However, the principles involved may be applied to any of our educational programs.

Preassessment of Students

The first component of this instructional design model is preassessment of the learner. At the very beginning, the instructor prepares a series of statements describing the target learners in explicit terms. The attempt is to state all of the learner's assumed entering behavior. The sought-after result is a behavioral description of what the student is prepared to DO when he enters the medical school, or the particular course in medical school, or the particular lecture or presentation during a course in medical school. This behavioral description of the student's entering behavior includes some assessment of his ability as represented by an ability score on some standardized test. The general information subscore of the Medical College Aptitude Test (MCAT) is an example of such a standardized test.

Statements are also made relative to the learner's past performance and academic achievement in the subject matter discipline or related disciplines with

which the instructor is concerned. Evidence of this kind of data is available in college grades and transcripts, scores on standardized tests such as MCAT (especially the science subscore), and achievement in prior courses in medical school. Relevant information concerning the student's socio-economic background should also be included in this behavioral description.

Once the preassessment statements are prepared, they must be validated. Those statements relating to assumed academic achievement may be validated by the administration of a diagnostic pretest. If the diagnostic pretest scores are high, and the test was based on the preassessment statement, the instructor can assume that the preassessment description is accurate. Listed below are some sample preassessment statements for a group of hypothetical medical students in a hypothetical medical school.

1. The students have minimum IQ scores of 100.
2. The students have the following range of MCAT percentile scores:
   a. verbal, 48-99
   b. quantitative, 44-99
   c. science, 45-99
   d. general information, 60-99
3. The students have completed each of the following college courses with a grade of C or better:
   a. chemistry
   b. biology
   c. physics
   d. college mathematics (including calculus)
4. The students have completed each of the following medical school courses with a minimum grade of 70:
   a. gross anatomy
   b. histology
   c. biochemistry
   d. physiology
   e. pathology
   f. pharmacology
   g. microbiology
5. Approximately 70 per cent men and 30 per cent women comprise the student body.
6. The vast majority of the students are Caucasian. Approximately 5 per cent are non-white.
7. English is a second language for approximately 2 per cent of the students.
8. Well over two thirds of the students come from middle income families. The remainder are nearly equally divided between the upper and lower income ranges.
9. Some 60 per cent of the students have one or both parents who are at least college graduates.
10. More than half of the students come from either rural areas or towns of under 20,000 people.

It is from considerations of this kind that rational policies relative to admission and promotion of students can be developed and implemented.

Instructional Objectives

The second step in the instructional design model is the development of the instructional objectives. This is probably the most crucial component in the process. Teaching often stands or falls on the basis of the quality of the instructional objectives. The first requirement of a good instructional objective is that it be stated in terms of learner behavioral outcomes, or, what the learner will be able to DO at the end of instruction. Secondly, a good instructional objective is observable by the instructor. An objective such as, "The learner will acquaint himself with the gross appearance of common neoplasms and with symptoms that are likely to result," is poor because we cannot observe "acquaint." It must be operationalized to some overt behavior such as, "The learner will name common neoplasms when presented with gross specimens of same." "Naming" is observable; "acquainting" is not.

Also, a good instructional objective is measurable by the instructor in some reasonably objective manner. The specific measuring procedure to be used depends on the nature of the behavior sought in each objective. A good instructional objective includes a minimum performance standard. This proficiency level means that all learners will achieve at this minimum level, or the instruction is failing. This requirement can be stated in several ways. For example, "When presented with gross specimens of the most common neoplasms, the student will correctly name 80 per cent of the sample." This example uses a percentage to express the proficiency level. The following example does not: "Given a patient who presents in respiratory arrest, the student will establish an airway within two minutes." What level of proficiency is stated should be based on a realistic expectation. The instructor should not require 100 per cent proficiency unless this is really what is meant. A proficiency level of 100 per cent means that all students who do not perform at the 100 per cent level of performance have failed (or, at least as likely, the instructor has failed in some way). When an instructor states the proficiency level, say 80 per cent as in our example above, this represents the minimum level of performance that all students must reach. Such specifications, if realistically determined, promote quality learning and eliminate failure.

A good instructional objective includes the physical setting in which the behavior is to be exhibited, if applicable. The following is an example of an objective in pathology, which specifically includes the physical setting in which the behavior is to be dem-

onstrated. "When presented with gross specimens of the most common neoplasms in the laboratory, the student will correctly name 80 per cent of the sample." Stated in this manner, it is clear that the behavior is not to be exhibited when the student is given photographs of common neoplasms, but rather when he is presented with the gross specimens in a laboratory situation.

Finally, a good instructional objective includes a time limitation, if this applies. An example of this type of an instructional objective was given above; *i.e.,* "Given a patient who presents in respiratory arrest, the student will establish an airway within two minutes."

The following examples of good instructional objectives are taken from a variety of courses in the basic and clinical sciences.

1. The student will explain the difference among and between:
   a. an open fracture,
   b. a comminuted fracture,
   c. a pathologic fracture,
   d. an epiphysial.
2. The student will demonstrate his acceptance of responsibility for his patients in a ward or in an ambulatory setting by being prompt, performing necessary procedures under supervision, writing proper progress notes on the chart, gathering additional information from referring physicians, local agencies, etc.
3. Given a muscle or muscle group, the student will explain the anatomical function or the impairment resulting from the functional loss of the muscle or group.
4. From a list of common congenital abnormalities, the student will recognize and describe at least 75 per cent of them, and analyze the anomaly in terms of specific development failures.
5. Given a lesion in the brain or spinal cord, the student will name the structures involved and the resultant signs and symptoms.
6. Given a patient, the student will set up and check an anesthesia machine, including all equipment and medications appropriate for that patient.
7. The student will describe the signs and symptoms characteristic of bacterial infections in the following systems:
   a. skin
   b. respiratory tract
   c. gastrointestinal tract
   d. urinary tract
   e. genital tract
   f. central nervous system
   g. blood
   h. anaerobic infections.
8. The student will list four abnormalities associated with premature labor, two principles of management, and two main factors affecting perinatal survival.
9. Given a series of patients that represent psychiatric emergencies, the student will determine whether or not an emergency exists, state how the patient should be initially managed, and defend his decisions.

When the student is presented with objectives that meet these requirements, the instructor's expectations are clear and the student has the basis for developing his own study patterns and evaluating his own progress.

Evaluation Procedures

The third component in our model requires the determination of appropriate evaluation procedures, including the selection or the preparation of measuring devices. As indicated in *Figure 1,* the instructional design model calls for the preparation of the evaluation procedures before the instructional procedures are established. This helps insure the evaluation will produce a valid assessment of the extent to which the objectives were achieved; that is, what the instructor set out to accomplish, rather than what actually was accomplished during the instruction.

The evaluation procedures are based on the behavioral requirements of the objectives and on the abilities of the target learners. The term "evaluation procedure" should not be interpreted to mean only paper and pencil tests. The instructional objectives may be adequately measured by a paper and pencil test in part or completely. However, the instructional objectives may require other evaluation procedures. Techniques such as simulation and task analysis of clinical skills are typical of such non paper and pencil evaluation procedures.

It must be remembered that any evaluation, by definition, is a sample of the behavior called for in the objectives, and one should not attempt to measure everything called for in the instructional objectives.

In the final analysis, the evaluation of medical students must be based on the behavioral requirements of the prestated and communicated instructional objectives, and on a realistic assessment of the student's abilities at a given point in time. Evaluating medical students should not be a game, a contest of wits between the students and the faculty. What is expected of the students must be communicated to them directly when instruction begins. Student progress must then be based on these expectations (instructional objectives), and done so at frequent intervals.

Instructional Procedures

The fourth and final step in this instructional design model is the preparation of the instructional procedures. To this point, we have not developed one minute of instruction. The usual approach is to design the instruction first and then prepare the components discussed above. This is inefficient and inappropriate. Efforts to prepare and select instructional methods and media should be far more rationally determined. This result is enhanced if the selection of instructional procedures follows the careful preparation of student preassessment, instructional objectives, and evaluation procedures.

Once again, the instructor returns to the behavioral objectives in order to design the instruction. This last step is independent of the preparation of the evaluation procedures, as indicated in *Figure 1*. Both flow from the objectives, but do so separately. This is to insure that both components, evaluation and instruction, are based on the objectives and not on each other. For example, if the evaluation was based on the instruction, one may end up with a good measure of the instruction but not necessarily of the achievement of the instructional objectives.

Instructional methods and media offer the instructor a wide range of choices. There is much overlapping between methods and media, but it is convenient to separate them for clarification. Lectures, seminars, clinical conferences, laboratory sessions, and independent study are examples of instructional methods more commonly used in our medical school.

In terms of instructional media, a great deal has been added to the instructor's arsenal in recent years. However, one may become so "turned on" by the newer technology that the value of older media, such as the printed page and the blackboard, are lost in the shuffle. For some purposes, these media are more appropriate than the newer media, such as the overhead projector, 2×2 inch slides, movies, television, or computer managed instruction.

In the final analysis, the technology of instruction offers a wide variety of methods and media which can be used to produce quality instruction. The task of the instructor is to select methods and media rationally. That is, he must base his choices on the behavioral requirements of the objectives, the nature of the subject matter, the abilities of the students, and on the availability and efficient implementation of these instructional procedures.

(Continued on page 128)

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

POSTGRADUATE MEDICAL EDUCATION

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SURGERY

March 26, 27 and 28, 1973

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Scientific ARTICLES

Myasthenia Gravis and Immunity

A Review of Basic Mechanisms

MICHAEL RYAN, M.D., BARRY EGBERT, M.D. *and* DEWEY K. ZIEGLER, M.D., *Kansas City, Kansas*

MYASTHENIA GRAVIS has been an enigma to physicians since its original description by Willis in 1672. Clinical description and diagnostic methods are now well elucidated, but pathogenesis remains unknown. Simpson, in 1960, first speculated that myasthenia gravis was an autoimmune disorder and later, in 1968, indicated certain features of the disease suggesting such an etiology. These features were: (1) The age and sex incidence; (2) the remitting course; (3) multi-organ involvement; (4) the characteristic muscular pathology; (5) the frequent involvement of an active lymphoid organ—the thymus; (6) the occurrence of transient neonatal myasthenia gravis in infants born to myasthenic mothers; and (7) presence of complement fixing reaction in serum from myasthenics.

Probably the most important keys to our present understanding of the relationship of altered immune processes to myasthenia gravis are the facts concerning the normal and abnormal thymus.

Thymus and Immunity

The normal thymus is essential for the maturation of lymphocytes and spleen and for various cell-mediated responses—delayed hypersensitivity, homograft immunity, graft-versus-host reactions, and for reconstitution of the immunological system.[28] Neonatal thymectomy in mice results in a marked deficiency of lymphocytes in the paracortical areas of the lymph nodes and in periarteriolar regions of the spleen.[85] These same experiments revealed a functional deficiency in cell-mediated immunity. The implication drawn was that the thymus exerts an influence on the development of precursors of antigen sensitive cells which, when matured, are dependent not on the thymus but on the antigen in question.[85] Restoration of immunocompetence in these thymectomized animals was accomplished by several means: (1) Infusion of lymphoid cells from the spleen, thoracic duct and lymph nodes; (2) thymus grafts with the presence of epithelial reticular tissue necessary; (3) injection of $100\text{-}400 \times 10^6$ thymus cells; and (4) rejection of thymic extracts. These results indicate that the epithelial stroma influences host precursor cells making them immunocompetent, perhaps by a humoral factor acting on an already differentiated population of post-thymic cells, or that immunologically competent cells are present in the thymus.[28, 53, 85]

These results from restorative immunocompetence studies coupled with the cell-mediated deficiency associated with neonatal thymectomy point strongly to

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the role of the thymus in the development of lymphoid tissue and normal immunological function. Yunis *et al.* propose three mechanisms through which this thymic influence might occur: (1) An inductive influence on immigrant precursor stem cells of hemopoietic origin, occurring within the thymus and acting to differentiate stem cells to several different types of cells; (2) proliferation of thymic lymphocytes which migrate to the periphery acting either as precursors themselves or interacting with precursors to produce immunocompetent cells; (3) an inductive effect of the thymic stroma acting either in the thymus or in the periphery to increase the number of immunocompetent thymus dependent post-thymic cells.

Thymus and Myasthenia Gravis

Ten per cent of myasthenia patients have an associated thymoma. Although the remaining 90 per cent have a thymus of normal size, 75 per cent of these display abnormal microscopic findings.[10, 28] Studies of these abnormal findings indicate that there are numerous hyperplastic germinal centers in the medulla of the thymus in many cases of myasthenia gravis.[5, 10, 62, 63]

Myasthenia gravis associated with thymoma tends to occur in males of the 40-60 year age group, whereas those patients with a thymus normal on inspection but showing abnormal microscopic changes, tend to be young females aged 15-35. The number of hyperplastic germinal centers found microscopically in these thymuses is not related necessarily to the severity of the disease, but is related to the length of time necessary for a remission following thymectomy. It is hypothesized that the germinal centers are sites from which abnormal clones of small, immunocompetent lymphocytes proliferate. These are long-lived cells and thymectomy has virtually no effect until this pool of lymphocytes is depleted.

Associated Dysfunctions

Other diseases with "autoimmune" features and thymic pathology in association with myasthenia gravis have been reported by numerous investigators.[4, 7, 28, 52, 53] These include Addison's disease, thyrotoxicosis, systemic lupus erythematosus, gonadal hypofunction, pernicious anemia, hemolytic anemia, rheumatoid arthritis, hypothyroidism, and thyroiditis.[4, 7, 28] Some of these complex interrelationships between disorders of the thymus-lymphoid system and other diseases are summarized in *Table I.*

Thyrotoxicosis, thyroiditis, and hypothyroidism in particular occur with significantly increased frequency in patients with myasthenia gravis. Review of several studies has shown that sera of 25.9 per cent of myasthenia patients contain antibody to thyroid; in these studies the percentage of patients with clinical signs of thyroid disease was, however, not specified.[28, 58, 59] Adner *et al.* further studied the presence of protein abnormalities in the sera of myasthenia patients; *Table II* was constructed from data in Adner's study. These findings suggest the presence of multiple antibody production and altered immunologic response secondary to a generalized autoimmune process in the myasthenic population.

TABLE I

DISEASES WITH DISORDERED IMMUNITY AND LESIONS OF THE THYMUS-LYMPHOID SYSTEM

Thymic-Lymphoid Lesions	*Associated Disease*
Aplasia	Immunological deficiency and impaired resistance to infection
Dysplasis or thymitis	Myasthenia gravis
	Thyroid autoimmune diseases
	Systemic lupus erythematosus
	Rheumatic carditis
Lymphoepitheliomas	Myasthenia gravis
	Aplastic anemia and other blood dyscrasias
Lymphosarcoma	Lymphatic leukemia
Thymoma	Hypogammaglobulinemia
	Myasthenia gravis

Experimental Model

Experimental models of myasthenia gravis have been produced in guinea pigs by immunization with either an extract of calf thymus, calf skeletal muscle, or calf heart muscle emulsified in Freund's complete adjuvant.[20–24] Many of these animals develop an inflammatory reaction in the thymus ("thymitis") and a partial neuromuscular block. The neuromuscular transmission defect has been found to be dependent on the presence of the thymus, and animals thymectomized before immunization developed no neuromuscular block or thymitis. All test animals displaying a partial neuromuscular block also had evidence of thymitis. The block produced was similar to that found in myasthenia gravis. Electromyographic studies of the test animals showed: (1) a decrease in the muscle action potential after supramaximal stimulus, but normal response to direct stimulus; (2) an increase in muscle action potential following injection of neostigmine or edrophonium chloride; and (3) a decrement in successive muscle action poten-

TABLE II
MYASTHENIA GRAVIS AND ASSOCIATED DYSFUNCTION

Parameter Tested	*Myasthenia Sera*	*Normal Sera*
Protein electrophoresis	Normal	Normal
Antinuclear antibody	Present in 15%	Absent
Thyroglobulin antibody	Present in 35%	Absent
Muscle coating globulin	Present in 23%	Absent
Rheumatoid factor	Present in 6%	Absent
Normal response to primary delayed hypersensitivity	Present in 45%	Present in 86%
Thymic lymphocyte blast formation in response to phytohemagglutinin	Positive	Negative

tials following supramaximal nerve stimulus at 50/second.[20-22]

The neuromuscular block produced in these models developed in 7-10 days after immunization and lasted for approximately two weeks.[21, 32] Although thymectomy performed prior to the immunization prevented the development of this block, the immunized animals were allowed to develop thymitis. Thymectomized after two weeks, they continued to have a neuromuscular block for 3-4 days, in contrast to the 7-10 day period in thymus intact animals. Finally, the implantation of a thymus with "thymitis," enclosed within a millipore chamber, also produced the neuromuscular block which could not be attributed to the immune response. The "thymitis" thymus was apparently secreting a substance which passed through the millipore chamber causing the block.[21]

In summary, the data suggested that a humoral factor is released from the thymus with the "autoimmune" induced thymitis, and that this factor produces the neuromuscular block. Goldstein named this substance "thymin," and suggested that it may produce chronic changes at the neuromuscular junction, although no abnormality has been found in this area with immunofluorescent techniques. Efforts to isolate thymin from thymic extracts were initially unsuccessful. Later attempts revealed the unusual finding of two distinct polypeptides, the first, "thymotoxin," causing the characteristic myositis after injection with thymic extracts, and a second, "thymin," probably responsible for the neuromuscular block and causing a decreased postjunctional sensitivity to acetylcholine.[21]

Finally, strong evidence to support the hypothesis of a circulating neuromuscular blocking substance in myasthenia gravis is found in the neonatal disease.[73, 76] Infants of myasthenic mothers have myasthenic symptoms which last about six weeks.

Muscle Antibody

Strauss *et al.* first demonstrated in the sera of some myasthenic patients an antibody which reacted specifically with normal striated muscle.[78] It was found that the antibody was present in 30-50 per cent of all patients with myasthenia gravis, and in 95 per cent of all patients with myasthenia gravis thymoma occurred concomitantly.[1, 20] More recently, the antibody has been reported in 24 per cent of all patients with thymoma, but without myasthenia gravis.[41, 44]

The possible presence of an antibody reacting with a receptor at the neuromuscular junction, where evidence implicated a block, was first advanced in Simpson's original hypothesis. The mechanism of block would be competitive inhibition for the receptor sites. Strauss *et al.* and Namba and Grob, however, failed to detect any reactivity at the end-plates in immunofluorescent studies. It has recently been found that the F(ab) portion of the gamma globulin molecule, which consists of part of the light chain and part of the heavy chain and which carries the antibody activity, can be separated from the remainder by papain. It is this F(ab) fragment which has been found to bind to skeletal muscle in the myasthenic patient.[1]

Gamma globulin binding to striated muscle by the F(ab) fragments has also been demonstrated in the sera of patients with polymyositis and systemic lupus erythematosus. These results do not necessarily imply that the reactants are muscle antibodies; a nonspecific reaction independent of antigenic stimulation cannot be ruled out. However, these experiments serve to clarify the ambiguity and confusion associated with earlier work.

Summary

The thymus has been established as an active

lymphoid organ exerting important influences on the production of potentially immunocompetent cells, and possibly upon immunorecognitive functions as well. The increased incidence of blast cell formation of the thymic lymphocytes of myasthenic patients when exposed to phytohemagglutinin is evidence of an abnormality capable of causing immunologic abnormalities.

There is, then, abundant evidence associating myasthenia and autoimmunity, but the exact nature of the link is not clear. It is paradoxical that although thymic hyperactivity has been found to be associated with myasthenia gravis and possibly with autoimmunity, thymic deficiency would be a more understandable association. The thymus is believed to maintain a homeostasis which eliminates aberrant clones of cells, and deficiency of the thymus could facilitate autoimmunity by one of two mechanisms: (1) Failure to suppress mutant clones with particularly strong autoimmune potential; and (2) failure to suppress the normally produced cell clones which give rise to auto-antibodies.

A Review of Clinical Application

Although anti-cholinesterases medications remain the mainstay of treatment for the myasthenic, in recent years medical and surgical measures directed toward suppressing the immune process have been tried and found to be of variable success.

Adrenocorticotrophic hormone (ACTH)

The therapeutic effect of ACTH was first described by Soffer[75] in 1948. Early trials resulted in marked and dangerous exacerbation of the myasthenic state,[79] and for many subsequent years the drug was thought contraindicated in this disease. More recently, the therapy has been revived after the discovery that a remission often occurs after ACTH therapy if the initial stage can be weathered through.

Namba,[48] in 1971, reported on his own experience and reviewed the works of others, presenting a total of 188 patients and 315 ACTH courses. The observed pattern of response to ACTH in this and other studies[18, 27, 34, 54] was decreased strength in 62 per cent of the courses of treatment beginning about the second day of therapy and reaching its maximum on the sixth day. Subsequently, strength improved in 75-80 per cent of courses beginning the first day after cessation of therapy with a maximal response on the seventh day. The duration of the improvement lasted a mean of 60-90 days. Some feel this remission can be prolonged with maintenance ACTH therapy at weekly to tri-weekly intervals.[18, 48] The resulting degree of strength improvement has a significant, direct relationship to the degree of initial decrease in strength.[18, 48, 54] The effect of ACTH was enhanced[48] in females, in thymectomized patients,[70] in those with severe disease, and in patients younger than 31 years. The effective dose of ACTH[18, 48] was 160 mg intramuscularly, or 100 mg intravenously daily for ten days. Smaller doses gave less effect and higher doses gave no increased effect. Duplicating or paired courses were most effective when not separated by more than ten days.[18]

This pattern of response to ACTH (initial worsening with subsequent improvement) is peculiar to myasthenia gravis and is not seen in other diseases responsive to ACTH. The mechanism of action of ACTH is probably through stimulation of the adrenal cortex;[48, 50] stimulation of endogenous corticosteroids with typhoid-paratyphoid vaccine injection produces an effect similar to ACTH therapy,[18, 27, 48, 49] while metapyrone inhibition has no therapeutic effect.[27, 48] The possible effect of ACTH in myasthenia gravis on the pituitary adrenal axis, the lower motor neurone, the neuromuscular junction, and the immune system have all been investigated.

The pituitary-adrenal axis functions normally in myasthenia gravis,[18, 49] and no pathological or therapeutic effect attributable to mineralocorticoids has been demonstrated.[18, 48] Furthermore, only inconsistent therapeutic effects have been noted with the various glucocorticoids, although recent studies have reopened this subject.[50]

Regarding a direct action of ACTH at the neuromuscular (NM) junction, Namba has demonstrated that the early deterioration or weakness phase is accompanied by an increased NM transmission.[50] Because of the lack of immediate action, it is felt that the effect is not due to direct action of ACTH or glucocorticoids, but rather one mediated through intermediate factors.[48, 50] Decreased serum choline (precursor of acetylcholine)[60] and accelerated hydrolysis of acetylcholine[48] have been observed, and present a possible etiology for the initial weakness.

Direct links between ACTH immunosuppressive action and therapeutic effect in myasthenia are few. The thymolytic effect does not correlate with clinical improvement.[18, 48] The lympholytic action is not confirmed by any alteration in the peripheral lymphocyte counts,[18] and antimuscle and antithymus antibodies show paradoxical drop with greatest muscle weakness and elevation with greatest muscle

strength.[18, 27, 49] Engel[14] presents an interesting hypothesis of defective axoplasmic flow in the LMN with subsequent degeneration of the NM junction. He feels that ACTH and corticosteroids act against the etiologic agent, providing initial improvement of axoplasmic flow. Long-term therapy allows repair of the degeneration. In summary, though its mechanism of action is unknown and its effectiveness is limited, ACTH has a place in therapy—particularly in severe myasthenia gravis unresponsive to anticholinesterases, and in preparation for the stress of thymectomy.[48, 70]

Corticosteroids

Corticosteroids are gradually gaining support as therapeutic agents.[14, 29, 82] The only complete studies concern the use of methylprednisolone and prednisone. Use of both has resulted in favorable clinical response. Namba,[48] using methylprednisolone 60 mg intramuscularly for 10 days, gave 42 courses to nine patients. There was improvement in 55 per cent of the courses, and an initial decrease in strength in 71 per cent. Kjaer,[34] Jenkins,[29] Johns,[30] and Warmults[83] gave a total of 48 courses of prednisone to 40 patients, with 94 per cent showing remission and only 5 per cent having initial weakness. Improvement after steroids does not seem to be related to age, sex, or duration of symptoms, although these variables have not been studied in groups of sufficient magnitude to warrant firm conclusions. Patients seem to derive greater benefit after thymectomy—a result similar to that noted with ACTH. The dosages were variable from study to study, and the onset of relapses had a definite correlation with lack of, or inadequate maintenance dosages. Warmults and Engel[14, 83] make a reasonable case for high dose (100 mg) alternate day therapy, claiming fewer side effects and an equally successful response. Their recommendation is that the patient should be treated for 3-6 months before he is considered unresponsive.

The possibilities of action for the corticosteroids are the same as those for corticotrophin, and have been discussed in previous paragraphs.

Immunosuppressive drugs

These have received limited trials to date, and their potential is therefore unknown. Several drugs (6-mercaptopurine, azathioprine, methotrexate, cyclophosphamide, melphalan, and busulfan) have been tried in small numbers of patients with inconclusive results. The series of Mertins[46] (who used chiefly azathioprine and 6-mercaptopurine) is the largest and most successful with measurable improvement of as much as 50 per cent in 32 of 38 patients. This series, however, was not controlled, and the medication was used in combination with steroids in some cases.

Thymectomy

This form of treatment has received increasing attention as a form of therapy since 1936, when Blalock observed improvement in a patient with myasthenia gravis. At present, it is definitely recommended in patients with thymomas and in probably all those with severe nonthymomatous disease unresponsive to medical management.[42, 46, 47, 61, 62] The operative approach is transcervical[33] or via sternal splitting.[64] Kirschner[33] and others[40, 48] feel the former is the procedure of choice because of its decreased morbidity and mortality, but it is contraindicated with low lying tracheostomies and with low lying or large invasive thymomas. Preoperative preparation and postoperative management, in particular respiratory care, play major roles in the morbidity and mortality of either procedure,[40, 64] and improvement in these phases of myasthenia patient care have made the procedure far less formidable in experienced hands than it formerly was. Some even recommend routine tracheostomies to facilitate postoperative care,[61] while others[47] base this decision on the preoperative clinical evaluation.

In nonthymomatous myasthenia gravis complete remission or significant improvement has been reported in 70-80 per cent of patients.[42, 47, 61, 62] The remissions may occur within months, or as late as ten years following the operation. Except for a few isolated cases, this remission is persistent.[61, 62] Some clinicians feel that females, patients under 30 years of age, and patients with symptons of less than five years have better remission rates. Others[61, 62] feel there is no significant difference related to sex, age, or duration of symptoms. The thymomatous group shows a much poorer prognosis with significant improvement occurring in only 30-50 per cent.[40, 42, 47, 61, 68] More than half of thymuses removed from male myasthenia gravis patients contain thymomas—a fact which offers a possible explanation for the observation by some that males have a poorer remission rate. The remission rate is much less in cases where the tumors prove to be invasive or can be visualized radiographically.[47, 61] Reoccurrence of thymomas and myasthenia gravis, and the occurrence of myasthenia gravis in a previously asymptomatic patient, is not uncommon.[40, 61, 68]

Thymectomy was first instituted as empiric therapy; the autoimmune theory of pathogenesis for myasthenia gravis may well provide a rationale. To amplify some of the points made in the previous section, several studies[61, 62] point out that the remission rate as well as the time of onset of remission correlated directly with the number of germinal centers in the thymus. The centers are felt to be sources of antibodies and of long-lived and short-lived sensitized lymphocytes. Elimination of a cellular immune

response mediated by the latter could explain the pattern of remissions observed after thymectomies. Rapid remission would tend to occur after removal of a thymus with a small number of germinal centers or containing germinal centers producing short-lived effector lymphocytes. More gradual remission after thymectomy would also be due to removal of a thymus with a large number of germinal centers or of a large number of centers producing long-lived lymphocytes, with resultant more gradual depletion of this pool of cells. Failure of remission after thymectomy would be explained by the continued existence of a peripheral pool of immunocompetent cells or an incomplete removal of the thymus.[47, 61, 62]

Thymic irradiation

This procedure also has a definite place in the treatment of myasthenia gravis. It is recommended preoperatively in all patients with thymomas because it shrinks large, invasive tumors, it decreases the risk of tumor cell seeding, and it decreases the severity of the disease allowing better postoperative management.[40, 64, 67, 68, 74, 84] Preoperative irradiation also has been shown to improve the remission rate and the time of onset of remission in other myasthenic patients subjected to thymectomy. This is presumably due to the observed reduction of thymic germinal centers following irradiation.[62, 67] In several small studies using irradiation alone, an impressive improvement was noted in patients with thymomas (60%) and nonthymomatous thymic tissue (54%).[67] The patient numbers are small, but these studies certainly suggest that radiation may be more effective than anticholinesterase management in severely ill patients. Dosages of 1,500-2,500 rads are required to destroy the lymphoid tissue, but in treating thymomas 5,000-6,000 rads are necessary to destroy the epithelial cells. The treatment is given over a 4-6 week period.[67, 74, 84]

In summary, the usefulness of thymic irradiation alone in myasthenia has not been adequately studied. It is however of proven worth preoperatively in patients with thymomas, and in others—apparently increasing the postoperative remission rate and diminishing the severity of myasthenic symptoms postoperatively.

Conclusions

The theory of autoimmunity in pathogenesis of myasthenia gravis has provided some rationale for thymectomy, ACTH and corticosteroids, irradiation and immunosuppressive drugs in therapy. Numbers of remissions have occurred from the first modalities of therapy, but the results are still clouded with treatment failures and inconsistencies. Myasthenia gravis is a symptom complex or syndrome resulting from diverse heterogeneous neuromuscular transmission defects and processes which result in irreversible damage to the synaptic structures.[60, 61] Ideally, a therapeutic agent should block the causative factors and promote healing of damaged structures, but without known specific etiology for myasthenia gravis it will be impossible to provide consistent complete relief in these patients.

References

The list of references may be obtained from the authors.

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Cardiac Complications

Periarteritis Nodosa of Infancy

JOHN A. CROUCH, M.D. *and* **ANTONI M. DIEHL, M.D.,**
Kansas City, Kansas

PERIARTERITIS NODOSA is an uncommon disease in adults and can be considered rare in infancy. Only 26 cases under one year of age have been previously reported. The prognosis is poor, with most infants succumbing within five months after the onset of clinical symptoms.[1, 2] Premortem diagnosis is unusual and difficult, having been made only twice thus far.[3, 4] Infantile periarteritis nodosa is a disease of unknown etiology, frequently associated with aneurysmal dilatation and thrombosis of the coronary arteries, followed by sudden death. An awareness of the symptoms and signs of this disease may make early diagnosis possible and treatment feasible. The purpose of this communication is to present a child who died unexpectedly of cardiac complications of this disease at the age of seven years, and to review the literature with specific reference to the clinical features and pathological findings of periarteritis nodosa of infancy.

Case Report

A one-year-old white male was first admitted to the University of Kansas Medical Center in March 1964. He had been well until two weeks prior to admission, when he developed an upper respiratory infection manifest by a runny nose and low grade fever. The temperature rose to 102F (38.9C) and he was treated with penicillin and a right myringotomy for otitis media by his private physician. The fever initially declined, but then increased to 105F. The patient was admitted to another Kansas City hospital, where the physical examination failed to show significant abnormalities. The spinal fluid was clear, although 8-14 white blood cells (WBC)/cu mm were present microscopically. Daily fever spikes continued and he was transferred to the University of Kansas Medical Center. Review of systems and the past medical history were unremarkable.

Physical examination revealed a well developed but irritable, febrile, dehydrated child. The right tympanic membrane was perforated; the left was erythematous but not bulging. Pharyngeal and nasal mucous membranes were congested. Nuchal rigidity was absent and no adenopathy was present. The lungs were clear and the heart sounds were normal with no murmurs present. The liver and spleen were not enlarged.

Urinalysis was normal. Hemoglobin was 9.9 gm/100 ml, WBC 20,000/cu mm, with 75 per cent polymorphonuclear leukocytes, and the platelet count was persistently elevated between 600,000 and 800,000/cu mm. Serum electrolytes, blood urea nitrogen, serum creatinine, lupus erythematosus preparation, latex fixation, and cerebrospinal fluid (5 WBC only) were normal. The sedimentation rate was elevated to 60 mm/hr by the Wintrobe method. Cultures of the spinal fluid, urine, and blood were sterile, and that of the stool grew no pathogens. Serum protein electrophoresis showed an elevated alpha$_2$ globulin; the total protein was 5.3 gm per cent, the albumin being 62 per cent. Chest roentgenograms demonstrated an early pneumonia or pneumonitis. The electrocardiogram was normal, without S-T segment or T wave change. The bone marrow was reactive but otherwise normal. No focal abnormalities were present on the electroencephalogram.

Throughout the hospitalization, the patient had fever spikes as high as 104.9F. Treatment consisted of cooling blankets, cool water sponging and aspirin, with no appreciable response. An urticarial rash developed on the legs, and an erythematous maculopapular rash on his forehead. A noninfectious, multisystem disease process such as rheumatoid arthritis was thought to be present, and he was treated with aspirin 75 mg/kg without response. The salicylates were, therefore, increased to 140 mg/kg, clinical improvement ensued, and the fever abated. He was discharged on 300 mg of aspirin every six hours. When seen in followup ten days later, he continued to be well, with no evidence of rash or fever. The aspirin dosage was gradually decreased over the next four months, and when on no medication, he remained clinically well.

The boy was not seen again until six years later (aged 7 years), when he was readmitted to the Uni-

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versity of Kansas Medical Center in July 1970, with complaints of severe chest pain and dyspnea on exertion. The interval history was unremarkable except for an allergic state manifest by bronchial asthma with sensitivity to milk, feathers, fungus, and dust. He had been well until the previous day, when he experienced pallor, chest pain, and aching of arms while swimming. He remained lethargic throughout the remainder of the day and continued to experience chest pain, especially on exertion. That evening, while attempting to retrieve a baseball, he experienced syncope. He was seen by his personal pediatrician and found to have a blood pressure of 92/50 mm Hg and an irregular pulse with a rate of 62 beats per minute, prompting readmission to the University of Kansas Medical Center.

The physical examination was normal except for an irregular pulse and a rate of 64 beats per minute. No murmur or signs of congestive failure were present. Urinalysis, hemoglobin, sedimentation rate, triglycerides, hematocrit, white cell count, serum electrolytes, calcium. and phosphorous were all normal. The serum glutamic oxaloacetic transaminase (SGOT) was mildly elevated to 52 units/mm, and there was marked elevation of the lactate dehydrogenase (LDH) to 1770 units/mm. CPK was slightly elevated to 88 units/ml. Skull roentgenograms were normal. The chest roentgenogram showed calcification of the coronary arteries. The electrocardiogram *(Figure 1)* was abnormal with a prolonged corrected QT interval of 0.40 second. The P-R interval was short, measuring 0.08 seconds. ST segment depression was present in leads I, II, and all left precordial leads. The T waves were peaked in precordial leads V2 through V6. In addition to the sinus arrhythmia, occasional ventricular prematurities were present on a long strip of lead II (not shown). During the Master two-step test, the patient was able to complete only 18 trips (normal for age: 70), and developed anginal type pain in the chest and arms. The post-Master electrocardiogram revealed 9-10 mm depression of the ST segments in all leads. The vectorcardiogram showed anterolateral ischemia and suggestive of mild left ventricular hypertrophy.

Two days after admission, the boy stated he felt well. However, about an hour later, upon attempting to return from the bathroom, he complained of chest pain and suddenly collapsed with cardiac arrest. Attempts at resuscitation were unsuccessful.

At autopsy, significant gross abnormalities were found only in the heart. All noncardiac blood vessels were normal and free of disease. There was minimal congestion of the lungs and the liver. The heart was enlarged and weighed 130 gm (normal for age: 100 gm). The coronary arteries were thickened,

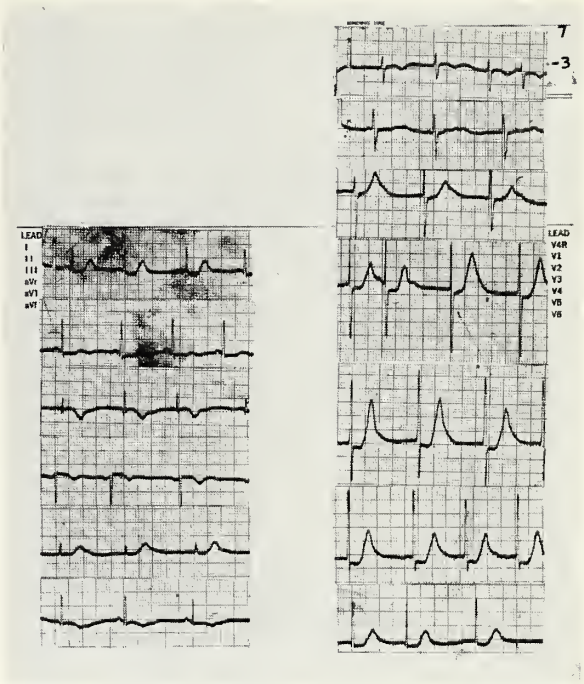

Figure 1. Electrocardiogram on the second admission.

cord-like and slightly tortuous, but the ostia were patent. Fusiform aneurysms were present at the beginning of the anterior descending branch of the left coronary artery *(Figure 2)*, the left circumflex branch, and the right coronary artery. Each aneurysm was approximately 1.2 cm in length and 1.0 cm in diameter. Mural calcifications and recent thrombi were contained within the aneurysms as noted on sectioning *(Figure 3)*. The valves were normal but the myocardium was red-brown and very firm. Scattered throughout the left ventricular wall and the interventricular septum, as well as a portion of the superior wall of the right ventricle, were grayish, soft areas interspersed with fibrous streaks.

On microscopic examination, sections from the aneurysms showed intimal and medial fibrosis with hyalinization. There was marked loss of elastic fibers in the larger coronary arteries, so that only fragments of the elastic lamina remained. The more terminal branches of the coronary arteries had better preservation of the elastic fibers. Focal areas of calcification were present within the walls of the aneurysms. The lumina were occluded by recent thrombi consisting of platelet and fibrin islands and red blood cells *(Figure 4)*. Wide patches of fibrosis were identified throughout the myocardium. In areas of epicardial involvement, the myocardial fibers were intensely eosinophilic with floccular degeneration of the cytoplasm with indistinct cross striations. Polymorphonuclear leukocytes admixed with scattered mononuclear cells were present in the interstitial tissue surrounding the necrotic myocardial cells.

Figure 2. Fusiform aneurysm at the beginning of the anterior descending branch of the left coronary artery (just above white label).

Figure 4. Low magnification of the right coronary artery.

In conclusion, there were fusiform aneurysms of the anterior descending left circumflex and right coronary arteries, with recent dense and organizing thrombi. Also, recent and healed myocardial infarcts of the lateral wall of the left ventricle, interventricular septum, and posterior wall of the right ventricle were grossly and microscopically identified.

Discussion

Several features in this case are typical of periarteritis nodosa of infancy as reported in the literature. Infants with this disease are most commonly hospitalized because of fever, conjunctivitis, upper respiratory infection, and rash.[1-5] Frequently there is a paucity of physical findings to explain the prolonged, septic-type fever. Associated laboratory findings are anemia, leukocytosis, and elevated alpha$_2$ globulins. Roentgenographic findings occasionally show pneumonitis or cardiomegaly. Clinically manifest periarteritis nodosa of infancy is usually progressive with a rapidly fatal outcome. The disease, primarily affecting males, has a clinical course from one day to five months, although the report of Chamberlain and Perry,[4] as well as our case, would indicate that healing of the lesions may occur with late cardiac complications and death. Although all of the manifestations may not be present in any one patient, a combination of several features should suggest that this disease is present. The more common clinical and laboratory abnormalities encountered in periarteritis nodosa of infancy are summarized in *Table I.*

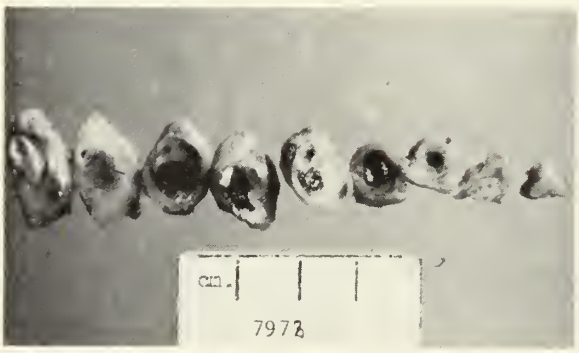

Figure 3. Sectioned anterior descending coronary artery.

Periarteritis nodosa of infancy is associated predominantly with involvement of the coronary arteries.[1-9] Blood vessels of the kidney, skin, and muscle are rarely involved in the infant. Unlike the adult, the child usually dies suddenly and unexpectedly due

to rupture or thrombosis of a coronary artery.[2, 3, 5-7] The lesions involve small and medium sized arteries, especially at their bifurcations.

Five stages of lesion development are classically described and may exist separately or together. The initial stage consists of edema of the artery, with degeneration of the adventitia and separation of the muscularis. The second stage consists of fibroblastic and histiocytic proliferation. In the third stage necrosis and aneurysmal dilatation develop. The fourth stage marks the beginning of the reparative process and is characterized by chronic inflammation and granulation tissue; the intima proliferates with resultant partial or total occlusion of the lumen. The fifth stage marks the end of the reparative process and is one of dense scar formation and interspersed calcification.[2] The pathological findings in our case are consistent with lesions in the late reparative phase (stage 5), and are strikingly similar to the lesions in the cases reported by Tang and Segal,[5] and Faber and Rather.[7] When the vascular lesions are in the exudative phase, the diagnosis is easily made. Because the lesions in children are confined to the coronary arteries, one may hesitate to make the clinical diagnosis of periarteritis nodosa, since these vessels are not accessible for biopsy and examination as are the peripheral arteries in the adult.[3]

Of the cases reviewed in the literature, ours is the only one with documented clinical findings of periarteritis nodosa in infancy to have survived for six asymptomatic years and then culminate in sudden death. The case reported by Faber and Rather[7] involved a boy 7 years old, who died with late reparative lesions of the medium sized arteries of the kidneys, pancreas, aortic adventitia and heart, including the main branches of the coronary arteries; however, he was 5 years old when he developed the clinical findings of periarteritis nodosa. Gore *et al.*[10] described a case of congenital aneurysms of the coronary arteries in a 26-year-old male; the lesions were consistent with those described in our case as well as that of Tang and Segal.[5] It is possible that these congenital aneurysms may represent healed periarteritis nodosa with long survival. It seems reasonable that one should consider healed periarteritis nodosa when one encounters multiple coronary artery aneurysms in a child or young adult.

TABLE I

COMMON CLINICAL AND LABORATORY FINDINGS PRESENT IN 27 CASES OF PERIARTERITIS NODOSA OF INFANCY

	Number of Patients
A. Clinical signs and symptoms	
1. Prolonged fever*	25
2. Upper respiratory infection*	23
3. Rash*	21
4. Gastrointestinal infection	15
5. Conjunctivitis	12
B. Laboratory findings	
1. Leukocytosis*	25
2. Anemia*	20
3. Chest roentgenogram	
a. Abnormalities of lung parenchyma*	13 of 20
b. Cardiomegaly	10 of 18
4. Abnormal ECG*	9 of 10

* Indicates findings present in current case.

The reasons an antemortem diagnosis of periarteritis nodosa is not usually made, even in the presence of the remarkably consistent clinical findings, may be two-fold. First, periarteritis nodosa is a rare disease and clinicians may be unfamiliar with the clinical findings. Secondly, an antemortem tissue diagnosis is virtually impossible because the vessels of the skin and muscle are not involved and, thus, no vessels are readily accessible for biopsy.[3, 6] If an antemortem diagnosis could be made, corticosteroid therapy instituted early in the course of the disease may alter the otherwise usually fatal outcome. Frohnert and Sheps[11] have demonstrated in a followup study in adults an improved five-year survival rate with corticosteroid therapy.

The etiology of periarteritis nodosa remains to be clarified. However, a hypersensitivity phenomenon is currently favored in the literature, although viral etiology as the initiating insult must also be considered as a possibility.

Summary

A 7-year-old boy originally presented at 1 year of age with clinical findings of periarteritis nodosa. He survived the acute illness and was without symptoms for six years, at which time he suddenly experienced severe chest pains on exertion, syncopal episodes, and died. In reviewing the literature, this is the longest interval of survival between the active phase of the disease and late demise from coronary artery pathological sequelae. Autopsy findings consisted of aneurysms of the coronary arteries that were occluded by fresh and organizing thrombi. Microscopically, the walls of the aneurysms were characterized by fibrosis and hyalinization. The clinical and pathological findings are characteristic of healed periarteritis nodosa. Although periarteritis is rare in infancy, physicians caring for children should be cognizant of the acute manifestations of this disease and its late, serious cardiac complications.

(Continued on page 108)

Spondylitic Cord Compression

With Focal Destructive Vertebral Lesions

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A CASE OF ankylosing spondylitis with two areas of focal destructive lesions causing cord compression is presented. Serial radiologic study and pathologic observations suggest that such lesions represent the end result of non-union of pathologic fracture in the ankylosed spine.

In patients with ankylosing spondylitis, neurologic complications can occur from atlantoaxial subluxation[1] or fracture dislocation of other vertebrae.[2] Epidural and intradural infiltrations of rheumatoid granuloma, producing an expansive mass effect with pressure on the spinal cord or cauda equina, have been reported.[3] Internal meningocele and root cysts[4] occurring at the lumbosacral level can produce a cauda equina syndrome.

An uncommon cause of cord compression in ankylosing spondylitis is the presence of a lesion that is radiologically characterized by an apparent destructive process of the intervertebral disk associated with sclerosis and irregularity of the adjacent vertebral surfaces.[5] The pathogenesis of such a lesion is unclear, although it closely mimics radiologically certain specific infectious granulomas, such as staphylococcal, typhoid, brucellar, fungal, and tubercular granuloma.

The authors had an unusual opportunity to study retrospectively, from serial radiographs, the evolution of such a lesion over a 23-year period, and to obtain surgical pathologic examination of the tissues at the site of the lesion. This study prompted the following case report.

Case Report

A 53-year-old white male entered the Veterans Administration Hospital, Kansas City, on September 8, 1971, because of a numb feeling in the legs and unsteadiness of gait of three months' duration.

He gave a history of back pain dating back to 1941. A diagnosis of Strümpell-Marie arthritis was then made, which was treated variously with lumbar fasciotomy, back braces, physical therapy, and radiation. Radiation appeared to give the most relief, although this was complicated by the development of secondary anemia. The patient had been on prednisolone and butazolidin for the past 15 years. For the last two years, the arthritic symptoms had worsened. During the three months prior to admission, he had noted unsteadiness of legs with a numb feeling below the hips down to the toes. He described frequent falls. His height had decreased from 6 feet 1½ inches in 1941, to 5 feet 6½ inches in 1971.

A clinical and pathologic summary of a case of cervical ankylosing spondylitis with spinal cord compression, suggesting pathologic bony fracture as an important part of the process.

There was marked kyphosis of the thoracic spine causing the patient to walk gazing at the floor. Gait was spastic, ataxic, and broad-based. Romberg's sign was positive. There was a 20 per cent decrease in strength in all muscle groups involving the lower extremities. Strength in the upper extremities was normal. Sensory examination showed diminished response to light touch and pinprick up to the level of T_{10}. There was striking loss of position sense in the lower extremities. Babinski's sign could be elicited bilaterally. There was no loss of sphincter function.

Laboratory values of complete blood count, urinalysis, electrolytes, calcium, phosphorus, uric acid, liver function tests, BUN, and creatinine were in normal range. Latex fixation test was very weakly positive in 1:20 dilution.

Radiologically, there was sclerosis and fusion of the sacroiliac joints. The lumbar spine showed the typical bamboo appearance from ligamentous calcification and fusion. There was a rounded kyphosis involving the thoracic spine. At the T_8 and T_9 level, there was increased radiolucency at the disk space with osteosclerosis of the adjacent vertebral surfaces.

Review of serial x-rays of the cervical spine showed some interesting features. The film done in

From the Department of Neurosurgery and Pathology Services, VA Hospital, Kansas City, Missouri, and the Section of Neurosurgery, Department of Surgery, University of Kansas Medical Center, Kansas City, Kansas 66103.

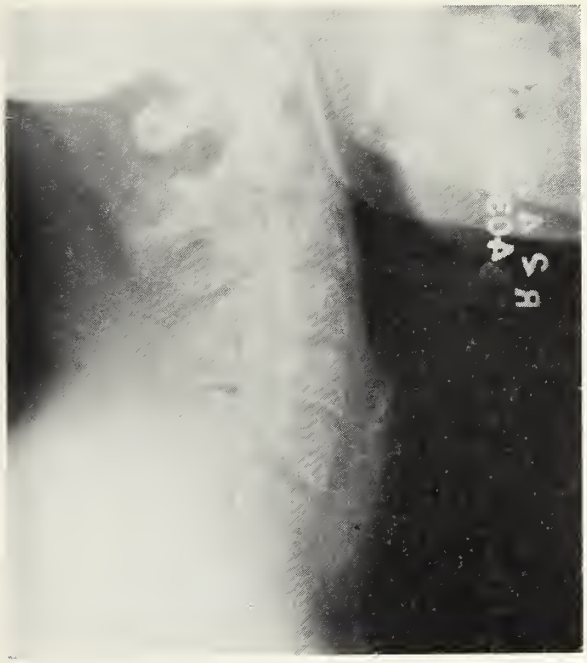

Figure 1. Cervical spine in 1948 showing normal degree of mineralization and alignment.

1948, in the early phase of the illness *(Figure 1)*, showed an entirely normal spine with normal degree of mineralization and alignment, with no abnormal calcification of ligaments. Twelve years later *(Figure 2)*, there was early generalized demineralization

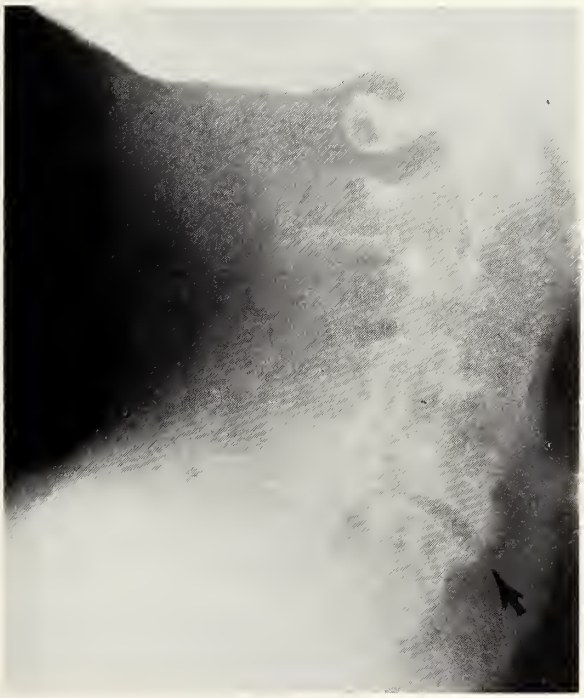

Figure 2. Cervical spine in 1960 showing early generalized demineralization of the spine with beaking at the C_5 and C_6 space (arrow).

Figure 3. X-ray during the current admission (1971), showing marked demineralization of entire cervical spine.

and calcification of the anterior longitudinal ligament. Concurrently with the early immobility of the spine from this pathologic fusion, there was some beaking at the C_5 and C_6 space, suggesting disruption and healing of the calcified anterior longitudinal ligament. The intervertebral space, however, appeared normal, as did the adjoining vertebral surfaces. In the late phase of the illness as seen in the current admission *(Figure 3)*, the entire cervical spine was solidly fused and the bone was markedly demineralized. Striking changes appeared at the C_5 and C_6 interspace. There was a continuous radiolucency along the disk space and the posterior elements, with advanced irregular sclerosis of the adjacent vertebral surfaces. However, the contour of the cortical outline of the bone was well preserved, as could be seen through the sclerotic area.

A myelogram showed subtotal block at T_8 and T_9 level *(Figure 4)* opposite the disk space, and another incomplete block at C_5 and C_6 level.

Decompression laminectomy was done at both levels in one procedure starting in the cervical area. The spinous processes and the laminae of adjacent vertebrae were found matted together by the spondylotic process. The ligamentum flavum was hypertrophic, and was densely adherent to the underlying dura at the site of the block. Beyond the block, the ligamentum flavum was free of the dura. Pressure on the dural sac was primarily by the thickened lamina and the ligamentum flavum.

Figure 4. Subtotal myelographic block opposite T_8-T_9 interspace which shows changes similar to C_5 and C_6 space in Figure 3.

The neck was immobilized in a cervical collar for a period of six weeks. The patient developed two postoperative complications; both, it was felt, were related to the prolonged steroid administration. He developed massive gastrointestinal bleeding on the third postoperative day, which required vagotomy and Billroth's gastrectomy for its control. The cervical wound dehisced but then healed by granulation without difficulty. Followup neurological examination two months after the operation revealed improvement in gait and return of vibratory and position sense. The muscle strength had improved, but moderate spasticity persisted.

The bone was indistinguishable from normal, with no evidence of active inflammation suggesting a quiescent stage of the disease. The ligamentum flavum and the muscle likewise showed no area of inflammation.

Comment

It is well known that the lower two cervical interspaces bear most of the strain during cervical motions, as evidenced by the frequency of occurrence of ruptured intervertebral disks at these levels. It would appear that as abnormal fusion progresses in the cervical spine, the point subjected to most strain is traumatized, resulting in what is analogous to the pathological fracture of a long bone. The sclerosis at the vertebral surfaces of the interspace may represent attempted formation of callus, while the radiolucent area in the center, fibrous union. The absence of rheumatoid granulomatous inflammation in the bone, ligamentum flavum, and muscle indicates that the ankylosing spondylitis is indeed in a quiescent stage, and inflammation is not responsible for the pathologic process seen in the radiograph. The fact that the radiologic change is not confined to the disk space, but is present all across the spine including the posterior elements, further supports the concept of pathologic fracture. The occurrence of another lesion at T_8 and T_9 can be explained by the fact that it was at the maximum convexity of the rounded kyphosis.

Several cases of fracture of the spine in patients with ankylosing spondylitis have been reported[2, 6] with varying degrees of neurological damage. The case presented here differs in that the process was gradual, and the pressure on the spinal cord was not from dislocated vertebra but from hypertrophic ligamentum flavum and the thickened lamina.

Kanfield *et al.*[5] recently reported three cases of patients with ankylosing spondylitis complicated by destructive vertebral lesions. In each instance, the tissue obtained from the site of the lesion showed nonspecific granuloma. They postulated that such a granuloma represented fibrous union of a fracture in ankylosing spondylitis. We concur with such a hypothesis based on the findings presented in our patient.

References

1. Martel, W. and Page, J. W.: Cervical vertebral erosions and subluxations in rheumatoid arthritis and ankylosing spondylitis. *Arthritis Rheum.* 4:514-532, 1961.

2. Woodruff, F. P. and Dewing, S. B.: Fracture of the cervical spine in patients with ankylosing spondylitis. *Radiology* 80:17-21, 1963.

3. Hauge, Tormad: Chronic rheumatoid polyarthritis and spondylarthritis associated with neurological symptoms and signs occasionally simulating an intraspinal expansive process. *Acta Chir. Scand.* 120:395-401, 1961.

4. Rosenkranz, W.: Ankylosing spondylitis: Cauda equina syndrome with multiple spinal arachnoid cysts. *J. Neurosurg.* 34:241-243, 1971.

5. Kanfield, D. G.; Mullins, B. P.; Freehafer, A. A. *et al.:* Destructive lesions of the spine in rheumatoid ankylosing spondylitis. *J. Bone Joint Surg.* 51A:1369-1375, 1969.

6. Grisolia, A.; Bell, R. L. and Peltier, L. F.: Fractures and dislocations of the spine complicating ankylosing spondylitis. *J. Bone Joint Surg.* 49A:339-386, 1967.

Emergency Care

New Developments

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The purpose of this paper is to present, in a brief and concise manner, two methods of emergency care which are being developed and will be utilized in the emergency service at the University of Kansas Medical Center in cooperation with both local government and private ambulance services.

Both systems have the potential of increasing our ability to better care for the patient, be he the patient with severe trauma or with acute myocardial infarction.

Prehospitalization Telemetry

RECENT REPORTS[1,2] have emphasized that 40 to 60 per cent of deaths due to myocardial infarction occur within the first hour after onset of symptoms. These statistics draw attention to the need for improved methods of delivering medical care to the patient who suffers a myocardial infarction. To meet this need, the mobile coronary care unit (CCU) has been devised. However, the cost of installation and personnel requirements prohibit the majority of hospitals and medical centers from maintaining such a unit.

Studies from the mobile coronary care units have substantiated the fact that most early deaths from myocardial infarction are due to disturbances of rhythm, rather than pump failure. Systems to monitor cardiac rhythm[3] have been instituted in ambulances, but such systems do not provide continuous monitoring of the electrocardiogram.

The HEAR system (Hospital Emergency Administrative Radio) allows voice communications to be maintained between the ambulance and the hospital. A HEAR console is located in the emergency area or CCU, where hospital personnel may converse with and relay instructions to ambulance personnel *(Figure 1)*.

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The COR system (Coronary Observation Radio) enables the ECG to originate from wherever the patient is. The signal is received in the ambulance, automatically retransmitted via a mobile repeater to the hospital, and monitored on the conventional CCU equipment. The frequencies utilized for continuous ECG transmission are exclusive and not shared by other agencies, thus insuring freedom from interruption.

The goal of these systems is to enable information to be transmitted from the patient to the hospital and, subsequently, the physician. In the same manner, information may be transmitted from the hospital to those attending the patient prior to the time he arrives at the hospital.

These systems place the physician at the patient's bedside by remote conversation rather than in person *(Figure 2)*. In addition, they relieve the ambulance personnel of decision making responsibility. The ECG diagnosis and medical instructions originate with the physician. Judgment and decision making rest with the physician, but the application of such measures as defibrillation and administration of intravenous medication rests with the personnel at the scene and, therefore, requires additional training with the institution of such a system.

Hemodynamic Monitoring

Diagnosis and treatment are based chiefly on information gained from the history and physical examination with support from the laboratory. Objective

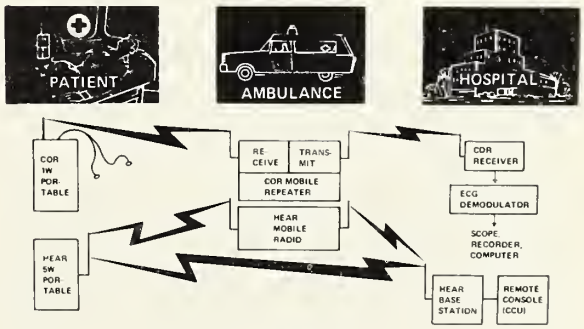

Figure 1

Figure 2. As many as four simultaneous ECG patterns can be received on the Coronary Observation Radio, observed on the oscilloscope, and instructions given to the ambulance personnel over the Hospital Emergency Administrative Radio.

methods of monitoring patients have been the temperature, pulse, respiration, sometimes the blood pressure, ECG, and urinary output. New technology used in the research laboratory is now being adapted for clinical use.

A catheter with tip-mounted pressure and flow transducers has recently been developed.[4] This device is inserted percutaneously through the femoral artery to the arch of the aorta. The flow transducer is connected to a square-wave electromagnetic flowmeter, and the pressure sensor to its control unit *(Figure 3)*. These units have been modified for clinical use incorporating simplified controls and electrical safety protection. The pressure and flow signals are observed on an oscilloscope and recorded on a strip chart. In *Figure 4,* the pulsatile and mean aortic flow are shown on the upper half of the record, and the pulsatile aortic pressure on the lower half. By using a cardiac analyzer, these two instantaneous signals are processed to provide stroke volume, flow rise time, pressure time index, pressure rise time, cardiac power, stroke work, and instantaneous impedance.[5]

An integral part of this program is the training of house officers and medical students in the utilization of electronic equipment in medical care. The physician must be able to appreciate the new data which is now available, and also must properly interface the patient with the equipment. An awareness of the

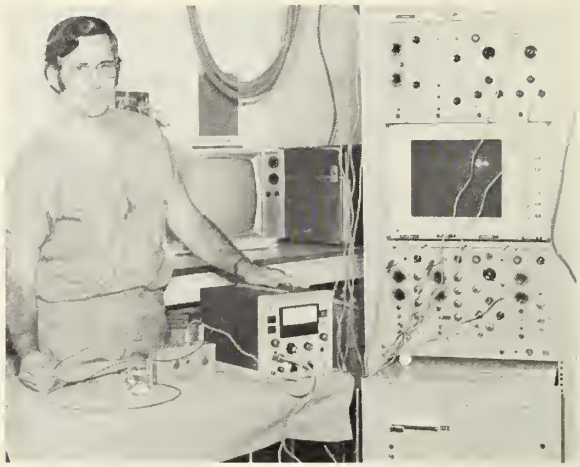

Figure 3. The catheter on the left is connected to the pressure control unit and the square-wave electromagnetic flowmeter. The output of these two instruments is observed on the recorder at the right.

risks involved versus the value of the information to be gained is essential.

Knowledge of these hemodynamic and cardiac parameters allows a more rational approach to the patient requiring aggressive emergency care. Although the majority of patients can be satisfactorily managed with the usual methods, these new devices may be lifesaving for the difficult cases.

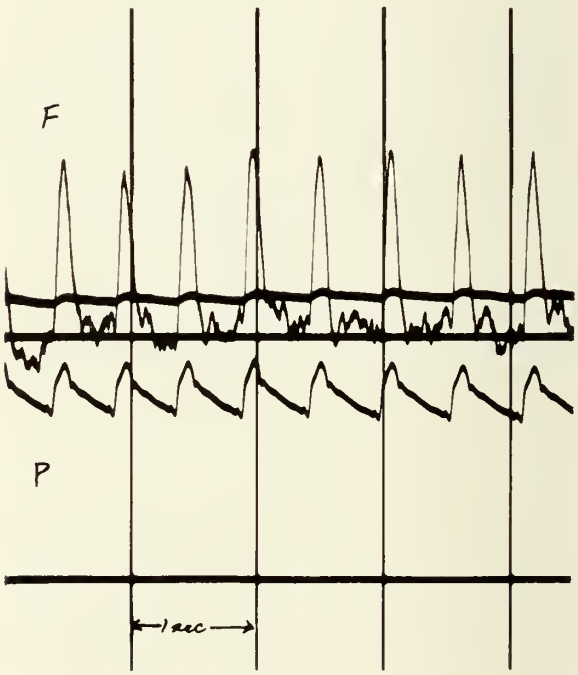

Figure 4. Pulsatile and mean flow are on the upper tracing; pressure is on the lower tracing.

(Continued on page 90)

Multiple Sclerosis

CNS Electrophoretic Patterns as Aid in Diagnosis

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Multiple sclerosis, the most common of the demyelinating diseases, remains an enigma, even though clinical descriptions and attempts at correlations with autopsy material were begun more than 100 years ago. Investigation of the diagnosis, pathogenesis, etiology, epidemiology, and treatment has been vigorous and widespread. Much of the information is inconclusive, but there is reason to be hopeful that the exciting possibility of elucidation of mechanisms underlying the disease, and more effective therapy, is a real one. This paper concerns itself with the value of cerebral spinal fluid protein electrophoresis in the diagnosis of multiple sclerosis. Altered levels of CSF proteins with regard to pathogenesis and etiology are discussed.

THE DIAGNOSIS of multiple sclerosis (MS) is almost entirely a clinical one, and may be quite difficult in the early stages of the disease. There seems to be good evidence that some people have one or two attacks and subsequently lead a normal life, free of all symptoms. At the other end of the spectrum, are the 1 or 2 per cent of patients with this disease who have a fulminant course, with rapid onset and progression to death in a period of weeks or months. The vast majority of patients experience symptoms which include visual disturbances, generalized or more localized weakness, sensory disturbances, ataxia, and urinary incontinence. These symptoms may appear singly or in various combinations, and are characterized by exacerbations and remissions. The central nervous system (CNS) lesions, giving rise to these symptoms, are the result of selective attacks on the white matter of the brain and spinal cord, resulting in myelin destruction with replacement by sclerotic plaques devoid of myelin and oligodendroglial cells. Oligodendroglial cells are thought to be responsible for depositing myelin along the axons. The remaining axons suffer a physiologically decreased function, as do those axons damaged in diphtheria and allergic neuritis. Present evidence indicates that the myelin sheath and the oligodendroglial cells are selectively attacked, whereas the neurons remain essentially intact. Schumacher[1] has proposed the following criteria as essential for the clinical diagnosis of multiple sclerosis: (1) there must be objective abnormalities on the neurological examination, attributable to central nervous system dysfunction; (2) by examination or history, there must be evidence of involvement of two or more parts of the CNS; (3) there must be objective findings of predominantly white matter (fiber tract) involvement.

The clinical diagnosis depends on ascertaining, by history or physical examination, lesions of the CNS white matter which are disseminated in time and disseminated in space, by involvement of two or more parts of the central nervous system. This may be difficult early in the course of the disease.

Laboratory studies alone do not permit the diagnosis of multiple sclerosis. Examination of the cerebrospinal fluid (CSF) has provided the single, most reliable laboratory study in the diagnosis of the disease. The CSF is essentially in direct contact with areas of pathology, and is easily obtainable. It seems clear that lumbar puncture in no way influences the course of multiple sclerosis.[2, 3] The most helpful studies of CSF have been those of its protein constituents. For many years, first zone elevations of the colloidal gold curve have been noted in some MS patients. More recently, elevation of gamma globulin, as well as immuno globulin G; have been described. Electrophoretic patterns of CSF proteins are described in terms of the total protein present, the quantity and percent of total, of albumin, and globulins. Various ratios, most often the albumin gamma globulin, are also of interest. Elevation of gamma globulin in the CSF occurs in approximately two thirds of patients with the clinical diagnosis of MS.[4] The per cent of total protein represented by gamma globulin has been considered the most significant finding in the diagnosis of MS, although Shuler[5] reports that more MS patients show an increase in the

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quantity of gamma globulin than the per cent of gamma globulin. In his studies, the CSF gamma globulin was determined by the zinc sulphate method as well as by electrophoresis, and absolute value of gamma globulin was found to be elevated in about three fourths of MS patients. This occurred slightly more frequently than did elevations of the per cent of gamma globulin. However, these results were only seen in patients whose total CSF protein was close to normal.

Electro-immuno-diffusion studies have shown CSF levels of immuno globulin G to be of approximately equal value to the gamma globulin in the laboratory diagnosis of MS. The number of elevations is greatest when the total CSF protein is in the normal range. Tourtellote[3] has reported elevations in about two thirds of the MS patients he has studied, but could not relate these findings to the clinical course of the disease. False positives in patients with neurological disease do occur, but are minimized to a level of about 6 per cent if other causes of elevated IgG in the spinal fluid are excluded. These include neurosyphilis, chronic CNS infection, other demyelinating diseases such as subacute sclerosing panencephalitis (SSPE) and elevated serum globulins. Some workers[6] contend that elevation of the gamma globulin or IgG in the CSF permits a laboratory diagnosis of multiple sclerosis (if CSF leukocytosis is less than 50, the total protein less than 100 mg/100 ml), and the venereal disease test (VDRL) and serum protein electrophoresis are normal.

Pathogenesis and Etiology

The etiology of multiple sclerosis has at various times been ascribed to CNS or systemic infection with bacteria, rickettsia, viruses, mycoplasma, and spirochetes. Metallic poisoning was suggested by Oppenheim, and dysplastic development of glial cells was postulated in 1896. As early as 1906, a myelinolytic toxin was proposed.[7] The current concepts of the etiology and pathogenesis are largely restricted to the possible role of viruses and alteration of the patient's immune status. Epidemiological studies have demonstrated fascinating, but as yet unexplained, patterns in incidence and prevalence of multiple sclerosis, which seem to correlate with latitude and perhaps longitude, and suggest that climatic or other environmental factors may be important.[4] The possibility exists that these environmental factors in some way involve viruses or altered immunity.

In the 1950s, Russian workers claimed to have found a vaccine for multiple sclerosis. Dick[8] showed this vaccine to be against the rabies virus. Slow viruses have been postulated by Gadjusek[10] and they continue to receive attention as possible etiologic agents. Serum titers of antibodies to measles were reported to be more common in MS patients than in the control group,[9] but this finding has not been confirmed.

An autoimmune or allergic etiology for MS is suggested by elevated gamma globulin and IgG in both the CSF and brain tissue. Animal models of allergic destruction of myelin in the brain or peripheral nerves do exist, but differ pathologically from MS. The origin of gamma globulin and IgG in the CNS has been studied, and such information could conceivably shed light on the pathogenesis and etiology of MS. Greater than normal IgG synthesis in CSF leucocytes of MS patients has been reported,[15] Hirschhorn[11] calculated IgG production from CSF leucocytes and concluded that this, along with normal transfer across the blood brain barrier, was not sufficient to account for elevated levels seen in MS, and that, therefore, another source, perhaps the brain itself, synthesized immune globulins. This view is supported by the work of Tourtellotte,[3] who suggests that brain tissue synthesis is reflected by the diffusion of globulins into the extracellular fluid, the latter being continuous with the CSF.

Studies which suggest synthesis of immuno globulins within the nervous system assume an intact blood brain barrier, and it is generally accepted that in health, CSF proteins originate from the serum. The blood brain barrier is assumed to be intact in almost all patients with multiple sclerosis, but this has been challenged by Poser.[4] Tourtellotte and Parker[12] believe that when the CSF protein is elevated above 100 mg/100 ml, the blood brain barrier has lost its selective properties. The total protein in multiple sclerosis is almost always under 100 mg/100 ml. There does not appear to be any evidence of albumin synthesis within the central nervous system. Work by Fishman[13] and others[3] indicates that all albumin in the CSF originates from the serum. The absolute quantity as well as the per cent of total protein represented by albumin are important, since a normal absolute value but low percentage strongly suggest an increase in other proteins, which in some cases might be synthesized with the CNS.

To recapitulate, the diagnosis of MS is essentially a clinical one which may be aided by studies of proteins within the CSF, particularly the gamma globulin or IgG. Diagnosis may be difficult in younger patients early in the course of their disease, and it is the purpose of this paper to explore CSF protein electrophoresis findings in MS patients below the age of 30 years. It is of interest to note that elevations of gamma globulin and IgG in the CSF are compatible with the two leading theories of etiology, namely the viral and autoimmune.

Material and Methods

Patient records from the KU Medical Center were examined, and two groups of patients selected. One group consisted of 41 individuals under age 30, with the diagnosis of multiple sclerosis. The second (control) group consisted of 37 patients without age limitation, who did not have a diagnosis of multiple sclerosis. Patients in both groups had at least one CSF electrophoresis performed. The total CSF protein, per cent of total and absolute level of albumin and gamma globulin, were compiled. Colloidal gold curves, when available, were also compiled.

Results

MS patients ranged in age from 13 to 29 years; the non-MS patients, from 6 weeks to 69 years. Thirty per cent of MS patients and 49 per cent of non-MS patients were males. One MS and three non-MS patients were black. Total protein in the CSF was above normal in about one fourth of all patients. Albumin constituted a greater than normal percent of total protein, more often in the non-MS patients than in the MS patients. The percent and quantity of gamma globulin was elevated more often in the MS patients, and the albumin to gamma globulin ratio was higher in the non-MS patients. Colloidal gold curves were not available for many patients in the non-MS group. Approximately 30 per cent of the MS patients had a first zone elevation of the colloidal gold curve *(Tables I and II)*.

Discussion

Seventy per cent of the MS patients were female, and this is in agreement with published data for North America.[14] The risk of developing the earliest symptoms of multiple sclerosis rises with age, and reaches a peak at approximately age 30. Patients in this study were all below age 30. Multiple sclerosis is rare in both blacks and whites in the southern part of the United States, and much more common, at least in whites, in the northern parts of the United States. The risk of developing MS is thought by some to be equal for blacks and whites in the northern part of the country,[14] and the significance of the overwhelming preponderance of whites in the present study is unclear.

Total protein in the spinal fluid does not appear to be a useful differential point in the diagnosis of multiple sclerosis, except that values approaching 100 mg/100 ml are unlikely in MS. The percent and quantity of albumin were higher in the non-MS group, and this finding was consistent with the concept of MS being a disease in which the CNS may produce globulin, and in which the blood brain barrier usually maintains its integrity. However, more than half of the MS patients showed albumin levels above normal. The percent and quantity of gamma globulin are increased more often in the MS group, but this was true of less than 20 per cent of the patients in that category. This figure is considerably lower than that of Poser,[4] whose review of the literature indicated that approximately two thirds of MS patients showed an elevation in gamma globulin. The data in the literature include patients of all ages, as well as degrees of severity and duration of the disease. The data in the present study suggest that in patients under age 30, who by definition are in the

TABLE I

SUMMARY OF CSF ELECTROPHORESIS VALUES

	Normal Values for CSF (KUMC)	*MS* RANGE	MEAN	SD	% OF PATIENTS W/VALUES ABOVE NORMAL	*Non-MS* RANGE	MEAN	SD	% OF PATIENTS W/VALUES ABOVE NORMAL
Total protein	45 mg/100 ml	16-72	38.5	15.1	29	12-280	45.5	42.6	22
Albumin % of total protein	50%	24-72	56.9	9.9	78	37-59	59.9	7.3	95
Quantity of albumin	20 mg/100 ml	6.7-47.5	22.3	10.9	51	5.4-160	26.9	24.5	62
Gamma globulin % of total protein	10-20%	5-35	14.3	7.7	20	4.0-34.0	8.9	5.1	2
Quantity of gamma globulin ...	1.5-9.0 mg/100 ml	1.6-16.8	5.4	3.3	17	0.7-36.5	4.5	6.1	8
Albumin globulin ratio		1.3-14.2	5.3	3.0		1.4-15.3	8.2	3.5	

TABLE II

DIAGNOSES FOR NON-MS PATIENTS

1. Brainstem tumor
2. Psychotic depression
3. Atonic bladder
4. Schizoid personality
5. Not known
6. Syncope
7. Cortical atrophy
8. Presenile dementia
9. Atypical facial pain
10. Roussy-Levy syndrome
11. Optic neuritis
12. Grand mal epilepsy
13. Paranoid schizophrenia
14. Paranoid schizophrenia
15. Hypotonic bladder
16. Polyneuropathy
17. Depressive neurosis
18. Grand mal epilepsy
19. Delirium tremens
20. Depressive reaction
21. Atonic bladder
22. Grand mal epilepsy
23. Psychomotor epilepsy
24. Toxic psychosis
25. Hypertension
26. Schizophrenia
27. Migraine
28. Alzheimer's disease
29. Pernicious anemia and peripheral neuropathy
30. Transverse myelopathy
31. Metastatic spinal CA
32. Not known
33. Idiopathic generalized muscular weakness
34. Syphilis
35. Polycythemia vera
36. Amyotrophic lateral sclerosis
37. Idiopathic seizures

early stages of the disease, abnormalities in CSF gamma globulin are much less likely to be seen than in patients in later stages of the disease.

Summary

The diagnosis of MS is a clinical one, and may be especially difficult early in the course of the disease. Elevation of the CSF gamma globulin or IgG is said to occur in about two thirds of MS patients, and has been considered the single laboratory value most helpful in diagnosis. The present study suggests that under age 30, elevations in CSF gamma globulin occur in about 20 per cent of MS patients.

References

1. Schumacher, G. A. *et al.:* Problems of experimental trials of therapy in MS. *Ann. N. Y. Acad. Sci.* 122:552-568, 1965.
2. Schapira, K.: Is lumbar puncture harmful in multiple sclerosis? *J. Neurol. Neurosurg. Psychiat.* 22:238, 1959.
3. Tourtellotte, W. W.: Cerebrospinal fluid in multiple sclerosis. In Vinken, P. J. and Bruyn, G. W., eds., *Handbook of Clinical Neurology.* Amsterdam, North Holland Publishing Co., 1970, pp. 324-382.
4. Poser, C. M.: Recent advances in multiple sclerosis. *Med. Clin. N. Amer.* 56:6, 1972.
5. Schuller, E.; Rougues, C. and Loridan, M.: Das eiweisspektrum des liquors in verlauf der multiplen sklerose. *Wien Z. Nervenheilk, Suppl. II.* 104:137, 1969.
6. Bergman, S. and Gilland, O.: Monosymptomatic gamma globulin elevation in CSF as an indicator of MS. *Acta Neurol. Scand.* 44:228-40, 1968.
7. DeJong, R. N.: Multiple sclerosis—History, definition, and general considerations. In Vinken, P. J. and Bruyn, G. W., eds., *Handbook of Clinical Neurology.* Amsterdam, North Holland Publishing Co., 1970, pp. 324-382.
8. Dick, G. W. A. *et al.:* Virus of acute encephalomyelitis of man and multiple sclerosis. *Brit. Med. J.* 1:7-9, 1958.
9. Adams, J. M. and Imgawa, D. T.: Measles antibodies in multiple sclerosis. *Proc. Soc. Exp. Biol. Med.* 111:562-566, 1962.
10. Gajdurek, D. C. *et al.:* Slow latent and temperature virus infections. Washington, D. C., U. S. Department of Health, Education and Welfare, 1965.
11. Hirschhorn, K. *et al.:* Immune response and mitosis of human peripheral blood lymphocytes in vitro. *Science* 142:1185-1187, 1963.
12. Tourtellote, W. W. and Parker, J. A.: Post-mortem evaluation of the blood-brain barrier in MS. *J. Neuropath. Exp. Neurol.* 27:159-163, 1968.
13. Fishman, R. A.: Exchange of albumin between plasma and CSF. *Amer. J. Physiol.* 175:96-98, 1953.
14. McAlpine, D. *et al.: Multiple Sclerosis: A Reappraisal.* Baltimore, Williams and Wilkins Co., 1965.
15. Sandberg-Wollheim, M. *et al.:* In vitro synthesis of IgG cells from the CSF in a patient with MS. *Clin. Exp. Immun.* 4:401-405, 1969.

Emergency Care

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References

1. Pantridge, J. F.: Mobile coronary care. *Chest* 58:229, 1970.
2. Fulton, M.; Julian, D. G. and Olivers, M. F.: Sudden death and myocardial infarction. *Circulation* 40 (Suppl. IV):182, 1969.
3. Uhley, H. N.: Electrocardiographic telemetry from ambulances: A practical approach to mobile coronary care units. *Amer. Heart J.* 80:838, 1970.
4. Jacobs, R.; Killam, H.; Barefoot, C. and Millar, H.: Human application of a catheter with tip-mounted pressure and flow transducers. *Rev. Surg.* 29:149, 1972.
5. Jacobs, R. R. and Schenk, W. G., Jr.: On-line computation of instantaneous vascular impedances. *Surg. Forum* 22:182, 1971.

Perthes' Disease

Current Concepts of Treatment

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LEGG-CALVE-PERTHES' DISEASE (coxa plana) has been recognized in children since 1909 as a disease involving the femoral head. A vast amount of literature has been written about Perthes' disease, but its exact etiology and pathology are still not completely known.

Perthes' disease is seen in children from the ages of three to eleven, and occurs more frequently in males (1 in 750 males, 1 in 3,700 females). The Negro is very rarely affected.

Perthes' disease appears to be related to ischemic necrosis of the femoral head. An occlusion of the arteries to the femoral head has been proposed as the cause of ischemic necrosis. Salter[1] has shown that approximately 5 per cent of children with transient synovitis of the hip develop Perthes' disease. It has been postulated that this synovitis causes an increase in the intracapsular pressure, thus occluding the epiphysial vessels, and results in ischemic necrosis of the femoral head.

Clinical Symptoms

The child with early Perthes' disease usually presents with a slight limp and a mild pain in the hip, thigh, or the knee. These symptoms are usually so mild and insidious in onset that the child does not usually present for medical evaluation until three to six months after the onset of symptoms. Unless specifically looked for, the disease may be easily missed by the examining physician. The child will occasionally present with the pain in the knee and inner thigh, with complete lack of hip pain. A trauma history can often be elicited from these patients, but trauma appears to bear no relationship either to the onset or the prognosis of Perthes' disease. The diagnosis can usually be confirmed by x-rays of the hip. It is recommended that both anterposterior view of the pelvis and a lateral view of the involved hip be obtained for adequate diagnosis. The initial clinical examination is usually quite unremarkable. The patient may have some thigh atrophy. If the disease has been prolonged, or if the patient is in an acute stage, there may be some limitation of motion of the hip and an associated flexion contracture of 15-30 degrees.

Results

Perthes' disease, even without treatment, is a self-limiting disease and will eventually heal with revascularization and reossification. An enlarged, flattened, incongruous head may be the end result of a healed Perthes' disease. Frequently, a subluxated head results with a considerable amount of the head not covered by the acetabulum. The cartilage covering the femoral head is normal, but it is the asymmetrical femoral head that is at fault and leads to degenerative arthritis in the adult. The femoral head deformed by Perthes' disease is, therefore, subject to a much higher incidence of degenerative arthritis. Several recent studies[2, 3] with 30-40 years of follow-up have shown that the severity of degenerative arthritis is not as high as one might expect from viewing the roentgenograms of a healed deformed femoral head. Ratcliff[3] has shown that deterioration of the hip joint is rare up to 40 years of age, and that the clinical deterioration was not as bad as the radiological deterioration.

Recognizing the slow progression to degenerative arthritis in late adult life, the treatment of Perthes'

Perthes' disease is a self-limiting disease of the hip in children, which may heal with an irregular, enlarged incongruous head. Our treatment is based on the principle of containment of the femoral head in the acetabulum. This containment not only allows a better distribution of the stress forces on the head, but allows better molding of the head during the healing phase. The Tachdjian abduction brace is preferable, as it allows the patient to be ambulatory and to continue with most of his activities.

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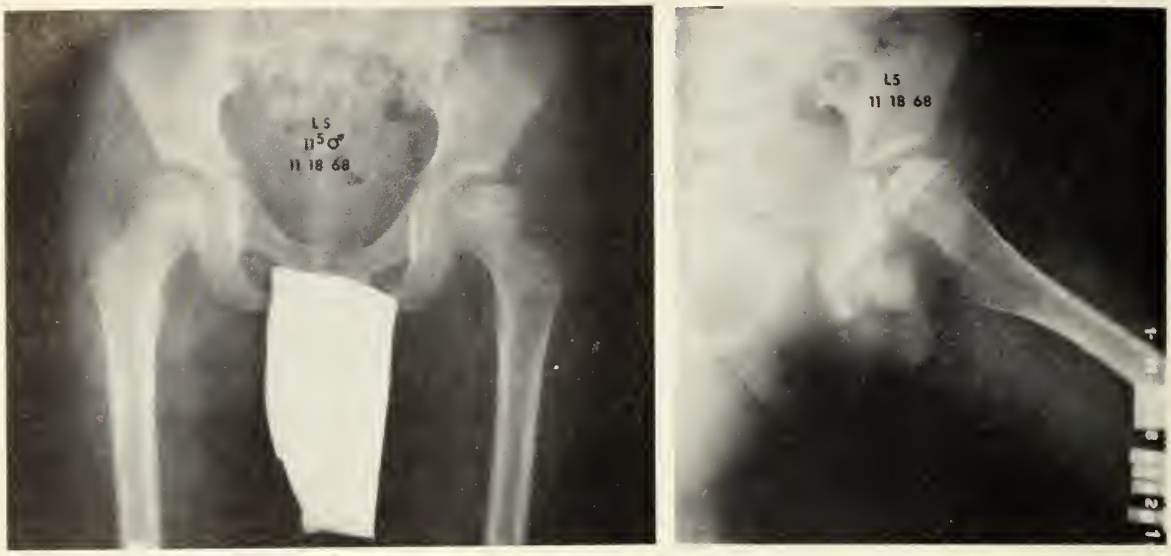


Figure 1. At age 11 years, 5 months, the x-rays show changes compatible with Stage II. There is increase in density of the femoral head, decrease in relative size of the femoral head, and increase of the medial joint space.

disease in children must be directed toward maintenance of a smooth symmetrical head with as conservative a treatment as possible.

Pathological and Roentgenographic Findings

The roentgenographic changes in the hip with Perthes' disease can be divided into fairly definitive stages, which represent recognizable pathological changes. The classification found most useful is from Tachdjian,[4] which is modified from the work of Waldenström[5] and Junsäter.[6] The disease process presents four recognizable stages, although the transition is gradual and spans a time of two to three years. These stages are: the incipient or synovitis stage, aseptic or avascular stage, regenerative or fragmentation stage, and a final or residual stage.

The incipient or synovitis stage is described by Tachdjian as primarily in the soft tissue, with synovial and capsular thickening and with joint effusion. Widening of the medial joint space (Waldenström's sign) is usually evident. Osseous changes include some decalcification of the inferior portion of the metaphysis of the femoral neck.

The second or avascular stage occurs due to the death of portions of the osseous nucleus of the epiphysis. The extent of involvement may vary from a small portion of the epiphysis to the entire ossific nucleus. The roentgenograms in this stage *(Figure 1)* show increased bone density with occasional areas of rarefaction. The reason for the increased density seen in this stage is a somewhat confusing issue. The classical concept states that no bone regeneration is evident,[6] but the density of the epiphysis may remain the same while disuse atrophy of the surrounding area gives a relative increase in density to the epiphysis. Some bone collapse may also occur in the area of necrosis to contribute to the increased density. This concept has recently been challenged by Glimcher *et al.*[7] They state that the increased density can be caused by the addition of new bone to the previously necrotic area.

Flattening of the femoral head may occur and, as in stage 1, an increased distance between the femoral head and the medial wall of the acetabulum may occur. This stage lasts 6-18 months, and has been described by Salter as the "quiet phase," during which the child is usually without significant symptoms.

The third stage is the regenerative, or fragmentation, stage during which the healing of the necrotic bone takes place. Revascularization is followed by resorption of the necrotic bony spicules. This creates a weak mechanical structure during which the head is vulnerable to collapse and fragmentation. Revascularization also leads to ossification as new bone is laid down along the remaining necrotic bony spicules. The articular cartilage remains viable during this stage as its nourishment is directly from the synovial fluid and not from the epiphysial vessels. The deep layer of the articular cartilage contributes normally to the growth of the epiphysis by enchondral ossification. During this stage of Perthes' disease, enchondral growth continues and may lead to cartilage overgrowth of the femoral head, which when ossified contributes to an irregular, enlarged, mushroom-shaped head. This new bone and cartilage is immature tissue and has, what Salter describes, "biological plasticity." It is during this stage that the shape of the femoral head is determined. Roentgeno-

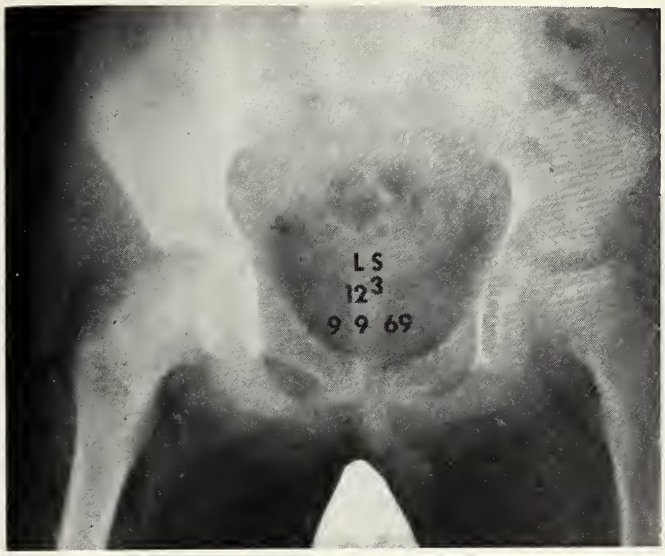
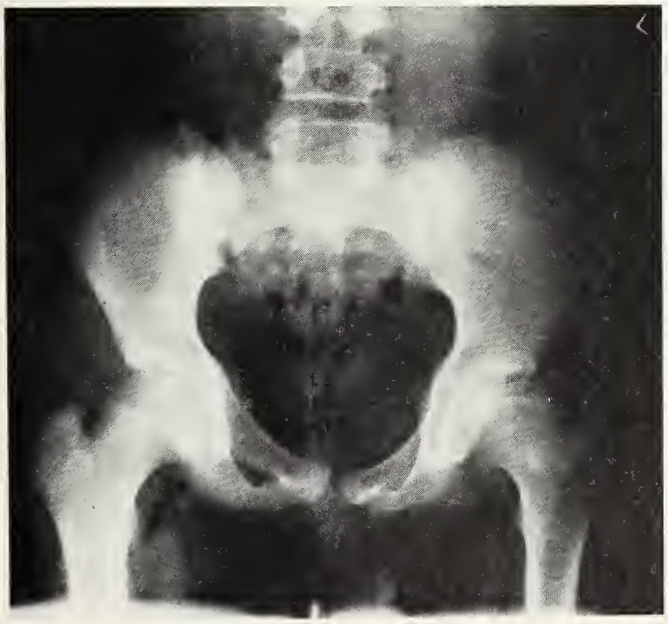


Figure 2. X-rays of the pelvis of the same patient at age 12 years, 3 months, now demonstrating Stage III. The x-rays show fragmentation of the femoral head, areas of radiolucency of the head, and flattening of the secondary center of ossification.

grams *(Figure 2)* show the femoral head to be compressed and fragmented with a sequestrum of bone occasionally being formed. Radiolucent areas are evident from cartilage replacements, and the femoral neck is widened.

The first two stages usually present with mild symptoms, but the third stage frequently causes the patient more acute symptoms. Our series shows that several patients in this stage had acute hip pain, limitation of motion, and frequently experienced a flexion contracture. An acute synovitis appears to accompany the fragmentation and collapse seen in this traumatic stage.

The final or residual stage *(Figure 3)* occurs when the healing bone structure is replaced by normal bony tissue. The deformity present in the previous stage becomes more apparent with the replacement of the cartilagenous tissue by mature bone. The areas of rarefaction and the sequestra are gradually replaced by normal bone.



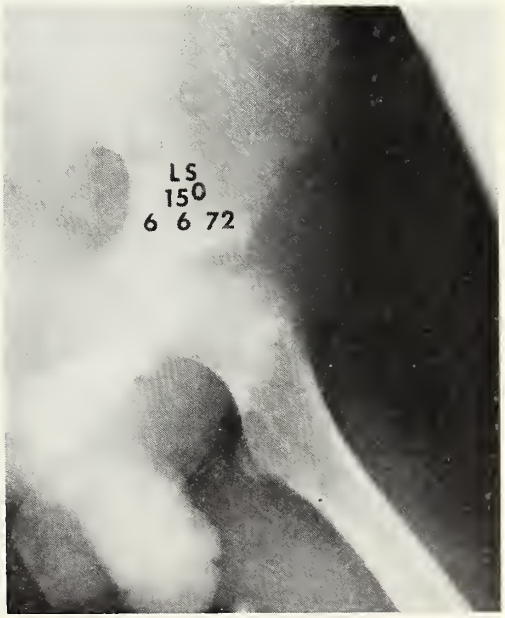


Figure 3. At age 15 years, the x-ray changes are those of residual flattening of the femoral head. This is the appearance of Stage IV.

Treatment

Two factors other than treatment have been found to be important in determining the course of Perthes' disease. The age of the patient appears to affect the final result. The earlier the onset, the better the result, as patients under five or six years of age have a much better prognosis than an older child. The amount of epiphysial involvement has a direct relationship on the prognosis of the disease. Catterall[8] has recently demonstrated that the greater the femoral head involvement, the more severe the deformity.

Many methods of treatment have been prescribed for Perthes' disease. These range from no treatment to various surgical procedures described, either to prevent or to correct the deformity. Management, treatment, and results at the University of Kansas Medical Center in the Kansas Crippled Children's Clinic were reviewed and compared with those in the literature. Most of our patients have been treated with an ischial weight-bearing brace. This brace has been widely used with the idea of preventing weight and stress on the involved femoral head, however, recent studies now question the effectiveness of this brace. We now know that the muscle pull alone can put a stress equal to or greater than the body weight on the femoral head regardless of bracing. The ischial weight-bearing brace also puts a lateral stress on the hip joint, further aggravating the tendency for subluxation. The use of the ischial weight-bearing brace has, therefore, been discontinued in the treatment of Perthes' disease at this clinic.

Strict bed rest for one to three years, while probably effective, is considered as too radical a treatment in a young child. It is felt that the psychic trauma of prolonged bed rest is too great a price to pay in the treatment of Perthes' disease. Bed rest is used, however, in specific cases. In the regenerative or fragmentation stage, the patient frequently has an acute synovitis with a stiff hip and a flexion contracture. Two weeks of bed rest with Buck's traction is of value in overcoming the muscle spasm and reducing the synovitis. An abductor tenotomy may also be of value in this stage.

Our treatment is based on the concept of "biological plasticity" as proposed by Salter.[1] The femoral

Figure 4. Clinical photograph of a patient in the Tachdjian trilateral hip abduction orthosis. The patient's left leg is held in abduction and internal rotation.

head by containment in the acetabulum is molded into a more symmetrical shape. This containment of the femoral head to allow molding is done by keeping the leg in abduction and in internal rotation. Various appliances have been developed for this,[9, 10] but the hip abduction brace developed by Tachdjian and Jouett[11] is preferable *(Figures 4 and 5)*. This brace keeps the hip in abduction and internal rotation, but allows the patient to be ambulatory. Disuse atrophy of the leg is prevented, and the patient is allowed to participate in most of the activities he desires. This brace is used only when motion of the hip is complete. With loss of hip motion, the patient should first be treated with traction until motion is restored. Traction or splinting is recommended for night use to continue with 30-40 degrees of hip abduction.

Surgical treatment has been advocated for the treatment of Perthes' disease. Better femoral head coverage can be obtained by either an innominate osteotomy, or by a varus trochenteric osteotomy. Salter recommends that the innominate osteotomy be done only in a child over six years of age with total head involvement, and before deformity and limitation of motion of the hip are present. We have had no experience with this type of treatment.

Garceau[12] has recommended in selected cases with femoral head deformity an excision of the anterior lateral portion of the femoral head. An osteotomy is done to reduce the deformity if the head is enlarged, saddle-shaped, and protruding outside the acetabulum. This procedure should be considered only when the arthrogram shows a large portion of the femoral head outside the acetabulum. Abduction in these cases causes impingement of the lateral portion on the head against the acetabulum. An osteotomy not only allows better abduction, but allows the head to develop a more symmetrical shape. This is strictly a salvage procedure and should be done in the late fragmentation stage or early residual stage. The innominate or the varus osteotomy, in contrast, should be done either in the avascular or early fragmentation stage.

The treatment of children with Perthes' disease at the Kansas Crippled Children's Clinic is now based on the use of the abduction splint and our treatment plan is as follows. For the patient under six years of age, with minimal or partial head involvement, we recommend frequent roentgenographic observation with no treatment. With full head involvement, the abduction brace is recommended. If the patient is over six years of age and has only minimal head involvement, observation with no bracing is recommended. With partial or full head involvement, the abduction brace is used. Traction and bed rest are used if the patient has severe pain or muscle spasm during the fragmentation stage. The hip is then treated with an abduction splint following recovery of hip motion. The Garceau osteotomy is considered if the deformity is beyond the remodeling stage and has a large saddle-shaped head.

Figure 5. Standing AP x-ray of the patient in a Tachdjian trilateral hip abduction orthosis on the left. By measurement on the x-ray, the patient has 28 degrees of abduction of the left hip with resultant coverage of the femoral head by the acetabulum.

References

1. Salter, Robert B.: *Textbook of Disorders and Injuries of the Musculoskeletal System.* Baltimore, The Williams and Wilkins Co., 1970, pp. 270-278.

2. Gower, W. E. and Johnston, R. C.: Legg-Perthes' disease, long term followup of 36 patients. *J. Bone Joint Surg.* 53A:759-768, 1971.

3. Ratcliff, A. H. C.: Perthes' disease. A study of 34 hips observed for 36 years. *J. Bone Joint Surg.* 49B:102-107, 1967.

4. Tachdjian, Mihran: *Pediatric Orthopaedics.* Philadelphia, W. B. Saunders Co., 1972, pp. 381-406.

5. Waldenstrom, H.: The definite form of the coxa plana. *Acta Radiol.* 1:384, 1922.

6. Junsater, S.: Coxa plana, A histo-pathologic and arthrographic study. *Acta Orthop. Scand.* Sup. 12, 1953.

7. Kenzora, J. E.; Steele, R. E.; Yosipovith, Zvi; Boyd, R. and Glimcher, M. J.: Tissue biology following experimental infarction of femoral heads. Part I. Bone studies. *J. Bone Joint Surg.* 51A:1021, 1969. (abst.)

8. Catteral, A.: The natural history of Perthes' disease. *J. Bone Joint Surg.* 53B:37-53, 1971.

9. Petrie, J. G. and Bitenc, I.: The abduction-weight-bearing treatment in Legg-Perthes' disease. *J. Bone Joint Surg.* 53A:54-62, 1971.

10. Bobechko, W. P.; McLaurin, C. A. and Maylock, W. J.: Toronto orthosis for Legg Perthes'. *Artif. Limbs* 12:36-41, 1968.

11. Tachdjian, M. and Jouett, L. D.: Trilateral socket hip abduction orthosis for the treatment of Legg Perthes' disease. *Orthotics Prosthetics* 22:49-62, 1968.

12. Garceau, G. J.: Surgical treatment of coxa plana. *J. Bone Joint Surg.* 46B:779, 1964. (abst.)

Fetal Monitoring

The State of the Art at KUMC Today

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In January 1971, a policy decision was made by the staff of the Department of Gynecology and Obstetrics, Kansas University Medical Center, to develop the capability for a better assessment of fetal well-being, both antepartum and intrapartum. Thus, fetal monitoring, as a discrete biochemical and biophysical science, was initiated with two specific goals in mind. First, to improve the quality of clinical care for easily identifiable high-risk pregnancies; and next, to provide the residents, medical students, and nursing staff with a relevant educational experience whereby these professionals could provide other communities with sufficient expertise to staff similar units.

Meeting these goals has been a frustrating and a relatively expensive but rewarding experience. While it is believed that both objectives have been satisfied, the experience gained to date has tempered the initial enthusiasm for this new science. Accordingly, the purpose of this report is to describe the facilities, the tools used, and the experience gained with *intrapartum* monitoring. Assessment of antepartum fetal health will be described in a subsequent paper.

Material and Methods

The sole justification for the use of any of the many biophysical devices commercially available today rests in the documented belief that there are no consistently reliable auscultatory criteria of early fetal distress.[1] Thus, continuous and concurrent electronic surveillance of both fetal cardiac activity or uterine contractility has been advocated by Hon,[2] Quilligan,[3] Caldeyro-Barcia,[4] and others.[5-8] Such surveillance has provided reliable and predictive information about the fetus and the uterus during labor.

Accordingly, it was elected to purchase a research-type 2-channel Beckman Offner Type RP Dynograph physiological recorder *(Figure 1)*, to monitor both fetal ECG and intrauterine pressure. Both signals were obtained by an invasive technique; in the former, a Hon-type silver electrode was attached to the presenting fetal part, which demanded that the forewaters be ruptured. The R-wave component of the fetal ECG was used to trigger a device known as a cardiotachometer. The operator could elect, with this type of instrument, to either display the direct fetal ECG or an accurate record of the instantaneous beat-to-beat heart rate. Measurement of the exact interval between heart beats (R-wave peaks) and electronic computation of the heart rate in beats per minute was possible. Further, the Beckman unit provided the operator with considerably more flexibility than was possible with the more conventional, so-called fetal monitor, units now on the market in that he could compress or expand his register scale at will. Further, he was not constrained to record his data at any fixed paper speed, but he could elect to display his signals at speeds varying from 1 to 250 mm/sec. The advantages, as well as the disadvantages, of this type of versatility in a fetal monitoring unit will be considered in more depth shortly.

Intrauterine pressure changes were monitored by introducing a saline-filled polyethylene (PE) catheter within the uterine cavity extraovularly (if the membranes were intact), or directly into the uterine cavity alongside the presenting part. Inadvertent rupture of the forewaters often happened, so that the invasive method might be unwise if the presenting part is not well applied to the cervix. The catheter was linked to an appropriate pressure transducer which, in turn, was coupled to the monitor. While most monitor units use a Statham P23Db transducer, the Micron model MP-15 miniature blood pressure transducer was found to be a more desirable item. This small unit *(Figure 2)* was attached to a much shorter length of PE tubing and the transducer was either slipped inside the vagina or taped to the patient's thigh. Thus, no extraneous length of tubing lay outside the patient; accordingly, considerably less noise artifacts were imposed on the pressure trace as the patient moved about in bed. Further, it was not necessary to flush the catheter periodically as often happened with the longer lengths of PE tubing. Another advantage of the Beckman unit was readily apparent as just about any pressure transducer could be easily calibrated to fit the instrument, whereas the calibrations are specifically set to fit the one pressure transducer provided with most clinical monitors. Further, more precise determination of the resting intrauterine tension (intrauterine pressure

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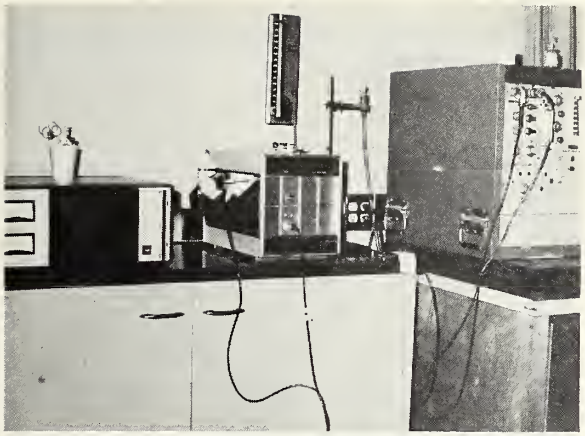

Figure 1. Key biomedical components utilized initially in the fetal Intensive Care Unit include 2-channel physiologic recorder interfaced with Doppler ultrasound fetal heart rate monitor.

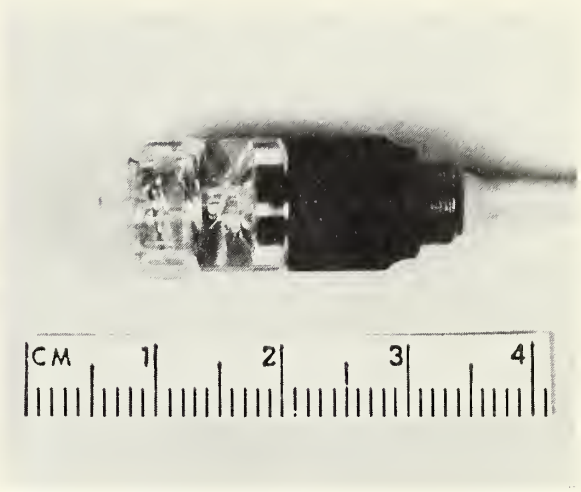

Figure 2. Micron MP-15 pressure transducer used to measure intrauterine pressure.

during uterine diastole) was possible with the balance controls available on the Beckman than was possible with the standard clinical monitors which have only a small adjusting screw on the face panel. These monitors allow a zero adjustment within a very limited range.

As noted above, invasive monitoring of the fetal ECG requires rupture of the forewaters. Therefore, the use of the noninvasive method was clearly necessary in some patients. Accordingly, our Beckman unit was interfaced with a Gould Instrument ultrasonic dual digital display unit containing a single Doppler rate module *(Figure 1)*. This small item allowed the Beckman unit to be used as the drive unit for the digital display of heart rate and intrauterine pressure and, with a minor change in the Beckman unit, it was possible to use either the fetal R-wave or the Doppler signal to trigger the cardiotachometer. The engineering changes were easily accomplished by the Biomedical Engineering Department, but could be done in any radio repair shop.

With the digital displays of fetal heart rate and uterine contractions, it was now possible to continuously monitor both parameters without simultaneously writing out the signals on paper. Even at 1 mm/sec paper speed, monitoring a patient over a six-hour period could generate 70 feet of paper. While this was wasteful, intermittent recording of patients was often necessary to document significant changes in the labor record.

The monitor unit was considered complete at this stage of development. Approximately $6,500 had been spent for the necessary hardware. Included in this base price were several optional features on the Beckman recorder, which have not been described since they are not essential. Without some of these, an expenditure of $5,700 would provide any labor room with a high-quality monitor. This unit did not include the option of an external pressure-sensitive device known as a tocotransducer, although this item could be easily interfaced to the Beckman. We believed this device to be of very limited value in that the signals are quantitatively meaningless and encumbered with artifacts.

No real savings in money had been realized over the fetal monitoring units currently available. However, a considerably more versatile unit was obtained which allowed extended capabilities. The advantages of such a unit have been recently reported by Goodlin.[9]

At this point, it was elected to expand our unit to satisfy other purely optional but essential instructional needs. Specifically, a Corometric Model 401 central monitor was added. This unit *(Figure 1)* displayed the most recent eight minutes of data by continuously reading out information from a delay-line memory tape. The data was displayed on a 9-inch cathode-ray tube (CRT) as well as two 3½-inch analog meters. This unit, with or without the analog meters, seemed particularly well suited as a remote unit in a nursing station or at some point away from the patient. However, it is an expensive device ($4,750) and not at all critical to a monitoring facility.

When one of the labor rooms which had been henceforth considered the Fetal Intensive Care Unit (ICU) was rewired, careful grounding of all the electronic devices was essential to minimize extraneous signals (signal-to-noise ratio), as well as to prevent any shock hazards to the patient. A Simmons-Hausted M-1900 ICU type stretcher bed with hydraulic controls replaced the traditional labor bed. Expendable supplies, such as stopcocks, PE tubing, disposable electrodes, recording paper and the like,

were kept within the fetal ICU. Complete monitoring kits were put together by the RN staff, and gas sterilized. A Harvard Model intravenous syringe pump Model 2689 *(Figure 3)* was purchased for the infusion of oxytocic solutions. This $340 device has been used henceforth in all inductions or augmentations of labor.

The final ICU package *(Figure 4)* provided the means to effectively monitor fetal heart and uterine activity in accord with the current literature. Included in this fetal ICU was a Doppler ultrasonic blood pressure recorder device, which permitted the operator to accurately assess maternal pulsatile arterial blood pressure automatically at preselected time intervals. Effective monitoring with the units described above began about July 1, 1971.

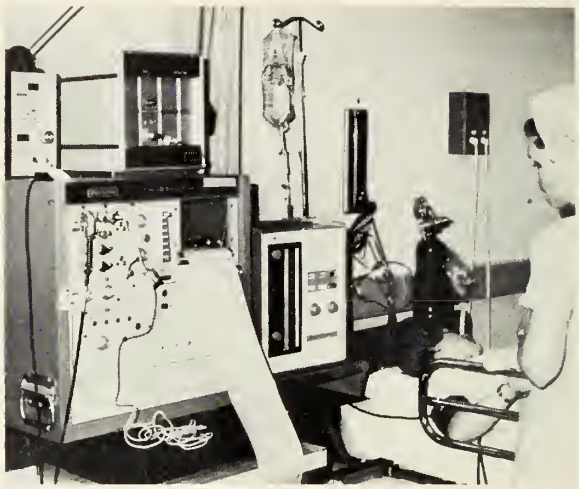

Figure 4. Fetal Intensive Care Unit also includes optional FM telemetry monitoring of FHR.

Results

Despite the elegant reasoning and objectives that led to the purchase of the biomedical devices described, no significant improvement in the perinatal mortality statistics could be defined (December 1972). Our primary cesarean section rate for calendar years 1969 through 1972 was 6.5, 6.2, 6.8, and 8.4 per cent respectively, suggesting a significant rise in the cesarean section rate during 1972. However, a preliminary evaluation of 70 consecutive primary cesarean deliveries done during the last part of 1971 and early 1972, demonstrated that only 20 of these 70 patients had been monitored. Analysis of the most likely reasons the patients came to operative delivery is presented in *Table 1.* Further study of the 20 patients monitored suggested that intrauterine fetal distress was the sole basis for operative delivery in seven patients. Three other patients were similarly treated with this same primary diagnosis, but were not monitored. In the 13 other patients who were monitored, apparent fetal distress played a contributory role in the decision to do a cesarean section in eight patients. Five patients were monitored for other reasons; the monitor patterns played no real role in the decision to do a cesarean section in these cases.

Figure 3. Harvard infusion pump used for intravenous administration of oxytocic solution.

Obviously, the fetal monitoring devices were not being used effectively. While it was possible retrospectively to demonstrate that the patients treated by cesearean delivery for obvious antepartum prob-

TABLE I

CLINICAL INDICATIONS FOR PRIMARY CESAREAN SECTION (70 PATIENTS)

1. Cephalopelvic disproportion and/or uterine inertia		29
2. Malpresentation (breech, face, transverse lie)		8
3. Prolonged rupture of fetal membranes		6
4. Intrauterine fetal distress		10
5. Other		17
a. Toxemia	(7)	
b. Erythroblastosis fetalis	(2)	
c. Diabetes mellitus	(2)	
d. Placental accident (previa, separation)	(4)	
e. Cervical malignancy	(2)	

lems, such as cephalo-pelvic disproportion (CPD), malpresentations, erythroblastosis fetalis, diabetes mellitus, and cervical malignancy did not really need to be monitored, failure to monitor many of the cases of uterine inertia, those with prolonged rupture of the fetal membranes, and particularly those with toxemia of pregnancy seemed indefensible. At least two-thirds, not one-third, of this group of patients could (should?) have been monitored, but were not. Competition for the only monitor unit available between equally deserving patients also did not seem to be the problem.

Despite this rather disappointing appraisal, one favorable change in our usual practices was observed. It was readily apparent that the customary dosages of oxytocic solution (Syntocinon™) used to stimulate or to augment uterine activity were excessive. Objective evidence for this conclusion was easily adduced from measuring the increase in resting IUT during uterine diastole. Further, a hyperkinetic dysfunctional uterine contractility pattern often resulted, during which significant alterations in FHR and stability were noted. The fetal reserves were being challenged unnecessarily with the oxytocin. Accordingly, precise intravenous infusion rates of low-dosage oxytocin, starting at 1 to 3 mU/min administered with a pump, is now our practice. And since the only accurate means of assessing IUT and the magnitude of each contraction is biophysical, most patients so treated are now monitored.

Discussion

In the past 18 months, fetal monitoring with both invasive and noninvasive techniques has been accomplished in more than 200 patients on a somewhat random basis, utilizing the monitoring equipment described above. While easily identifiable high-risk pregnancies were monitored more frequently than other patients, monitoring was used electively (for teaching purposes) in many parturients. In an appreciable number of other cases, monitoring was resorted to when intrauterine distress was suspected clinically (irregular FHR, meconium-stained amniotic fluid, intrauterine sepsis, and so forth). Our preliminary experience resembled that reported by Quilligan and his associates,[3] in that approximately only 25 per cent of patients who should have been monitored intrapartum could be identified antepartum.

As noted previously, we have no conclusive evidence that this new, relatively expensive science has improved our perinatal mortality or morbidity statistics. Similar findings have been reported by a group from Los Angeles.[10] Although our 1972 primary cesarean section rate increased over that of the three previous years, there was no hard data which would implicate the monitor. On the other hand, it was clear that many patients who should have been monitored were not. Some of the reasons they were not are identifiable—others are not. Nevertheless, it is believed several of the more obvious ones have been focused on. First, there is the usual lack of interest or enthusiasm for any new technique, particularly one that cannot be rather easily understood or quickly mastered. Analysis of the two data generated simultaneously is troublesome until the physician develops sufficient familiarity with the interpretive language of monitoring as defined by Hon,[2] Caldeyro-Barcia,[4] and others.[5-8] Further, a cursory review of the instructional manuals provided was not sufficient background to operate the devices effectively. Our selection of a high-quality sophisticated physiologic recorder was an error. The need for accurate calibrations, proper choice of optional monitoring functions, and so forth, required a degree of sophistication not apparent in the users. Accordingly, the conventional fetal monitoring devices are now being used (Corometrics, Berkeley Bio-Medical Engineering, Roche, Gould, Hewlett Packard are all representative), and this type of unit seems to be more acceptable. Admittedly, they are simpler to operate. On the other hand, the data is not quantitatively precise, particularly the measurement of resting intrauterine tension. So-called "balancing" the pressure transducer to a reference zero seems sufficiently challenging to the average physician, so that he repeatedly ignores the proper adjustments and is satisfied with a mere qualitative display of the labor pattern. Finally, although the literature and representative Atlases[1] consistently picture clean, easily identifiable tracings which conform to the interpretive language, in actual practice the physician is confronted with confusing tracings replete with spurious signals, some of which are true artifacts and others which are not. This is particularly true when noninvasive techniques are used. The Doppler ultrasonic signals are particularly troublesome and not interpretable in a restless or obese patient. Continuous and exasperating repositioning of the transducer on the mother's abdomen is necessary. The tocotransducer generates the same meaningless artifacts. A recent report commending these noninvasive techniques cannot be corroborated.[12] The noninvasive method must be considered realistically as a temporary and unsatisfactory substitute for the real thing.

Probably one of the most vexing situations repeatedly facing even the accomplished user relates to his inability to interpret the on-line data effectively, and to make an intelligent decision as to whether immediate intervention in the conduct of labor is justified. Although Schifrin,[13] Roux and his associates,[14] and others[2, 4, 8] have written extensively on the predictive value of various patterns, the final diagnosis of ob-

vious fetal distress is often a retrospective one, generated after a critical analysis of the record in conference sessions and with the neonate either in the nursery or the morgue. The authors agree with Taylor's recent editorial comments[15] on the relative lack of value which the monitoring provides in the second stage of labor. Disturbing head compression patterns, baseline FHR instability, and evidence of variable deceleration (presumably a sign of cord compression) precipitate hasty, even intemperate, obstetrical practice by the unwary physician. There are, however, instances in which unmistakable evidence of fetal distress precipitates the need for operative delivery. The patient is promptly transported to the surgical suite either without the benefit of further continuous monitoring, or both the patient and the monitor are caravanned to surgery. Alternatively, a second monitor is needed in surgery. This dilemma was resolved by simply providing the physician with a numerical digital display of the fetal heart rate which can be obtained either with a hard-wire interface or with frequency modulation (FM) telemetry.

Knowledgeable critics would perhaps castigate our failure to use fetal scalp blood sampling as a means of resolving which of the disturbing monitor patterns are significant enough to reflect fetal metabolic acidosis. This panacea, which seems particularly attractive to our European colleagues[7, 16] and is reported in our national literature,[17] has been seriously considered but temporarily deferred for a number of reasons. Until recently, our hospital clinical laboratory facilities have not been able to do an analysis of these capillary blood samples on demand. Alternatively, providing the resident and attending staff with a blood gas unit located in the labor and delivery pavilion has not been tried because of the obvious technical difficulties inherent in using the devices accurately. Special training and repeated use of the instruments are necessary if meaningful data is to be gained. While a medical technician familiar with the instrumentation can accomplish this, the casual user cannot. And the expense of providing a 24-hour technician for these analyses in an obstetrical unit which delivers fewer than 2,000 babies annually is prohibitive. However, more fetal scalp blood sampling should be done, now that the hospital laboratory facilities are available to this unit.

In the last several months, it was decided to restructure the fetal monitoring capabilities in several particulars. These include: (1) utilizing RNs as perinatal nursing specialists; (2) establishing a priori which patients must be monitored; (3) developing a prospective study whereby the real worth of the monitor units in the conduct of labor can be determined; and (4) initiating a critical assessment of our perinatal mortality and morbidity statistics. It may well be as Hon stated, that "perinatal mortality statistics per se may more accurately reflect the quality of newborn care than the quality of obstetric care."[18] Perhaps an expensive investment in both equipment and personnel in areas other than fetal monitoring is indicated if the health of our newborns is to be improved. Nonetheless, frustrating and disappointing as our experiences have been over the past 18 months, it is clear that one very significant gain was realized: the simplistic mechanistic care so often provided the parturient has been minimized. The physician, the resident, the medical student, and the RN have, in a sense, returned to the labor room. Judgments as to who should be monitored, effective utilization of the devices, interpretation of the monitor patterns, consultation, and finally justification for the way the patient was managed have all subtly required that the obstetrical team play a more active role than was evident two years ago. Subjective evaluation, often excused as clinical judgment, has been replaced by objective evidence of fetal compromise which cannot be dismissed casually. Admittedly, fetal intrapartum monitoring as we know it today is a primitive science. Still, we believe it holds great promise as a means of improving perinatal mortality and morbidity statistics.

Summary

During the past 18 months, fetal heart and uterine activity was monitored in the parturients selected more or less at random from the obstetrical admissions to the University of Kansas Medical Center. A critical analysis of the instrumentation selected for this purpose, the data generated, and an overview of the advantages (as well as the shortcomings) of this relatively new clinical science suggest the following.

The fetal monitoring devices have not been used effectively.

There was no hard evidence adduced which clearly demonstrated any real improvement in our perinatal mortality or morbidity statistics.

Proper utilization of the devices and interpretation of the signals generated demands that all members of the obstetrical team play a more active role in the management of the parturient than was heretofore evident.

Restructuring of our monitoring techniques and objectives with better utilization of qualified RNs seems vital if we are to improve the perinatal mortality and morbidity statistics.

References

1. Benson, R. C.; Shubeck, F.; Deutschberger, L. *et al.:* Fetal heart rate as a predictor of fetal distress. A report from the collaborative project. *Obstet. Gynec.* 32:259-266, 1968.

(Continued on page 105)

Low Back Pain

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THE TYPICAL patient is a 45-year-old, somewhat obese male complaining of severe low back pain radiating down either leg into the foot, following an episode of heavy lifting. The pain is typically described as that of an "electric shock." Occasionally, it may be sufficiently severe to convince the patient that he is paralyzed. Further questioning usually reveals that the patient has had many episodes of low back pain in past years, but they have been less severe and were relieved by a few days of bed rest. Physical examination shows marked spasm of the paraspinal muscles, tenderness in the lower portion of the lumbar spine, and marked loss of motion of the lumbar spine due to the spastic musculature. Straight leg raising is limited and produces pain radiating down the leg along the sciatic nerve. This pain is not produced when the leg is raised with a flexed knee, but is aggravated by dorsiflexion of the ankle and by compression of the peroneal nerve in the upper popliteal space. Decreased sensation is found over the anterolateral leg and dorsum of the foot in L5 root lesions, and the posterior leg, heel, and lateral foot in S1 lesions. Weakness of the extensors of the toes and dorsiflexors of the ankle is found in L5 lesions, and weakness of the triceps surae in the S1 lesions. In addition, the ankle jerk is decreased in S1 lesions. Typically, the root is compressed by a herniated disk at the interspace above; the S1 root is compressed at the L5-S1 interspace. X-ray evaluation at this time will show a straightening of the lumbar spine which is probably due to a teleological attempt to enlarge the intervertebral foramina. Those patients with a history of chronic low back pain are quite likely to show narrowing of the intervertebral disk space, subluxation of the facet joints due to the settling of one vertebra upon the other, impingement of the nerve root by the superior articular facet, and sclerosis of the facet joints.

The pathogenesis of this disease is one of progressive degeneration of the intervertebral disk and the surrounding ligamentous structures. Naylor[1] and Brown[2] have described this process as the predominance of depolymerization over synthesis of mucopolysaccharide leading to increased fluid content and elevation of intradisk tension which causes annular tears and herniation. This is associated with a decrease in polysaccharide content and increased fibrillation of collagen. Each acute process results in a new equilibrium with a buildup of polysaccharides to a new, but lower level than previously. Repeated episodes result in increasing polysaccharide loss and increasing of fibrillation of the collagen to the point where nuclear degeneration is so extreme that no increase in intradisk tension can develop. The loss of substance from the disk space causes a marked settling of one vertebral body on the other, and consequent subluxation of the facet joints.

Differential Diagnosis

There is a wide variety of conditions which must be considered as a possible cause of low back pain in addition to degenerative disk disease.[3] Examples are rheumatoid spondylitis, spinal cord tumors, bone tumors involving the lumbar spine including metastatic malignancy and multiple myeloma, disk space infection, occlusive disease of the aorta or iliac vessels, prostatic disease, and intra-abdominal malignancy.

Our underexercised, overstressed way of life frequently leads to the presentation of low back pain at the office of the primary physician. His response will be related, in part, to the degree of understanding he has of the pathophysiology of degenerative disease of the lumbar spine and its successful treatment. This article attempts to relieve the physician's anxiety by presenting an effective plan of management.

Conservative Treatment

The patient is put at absolute bed rest in the position which he finds most comfortable, usually with the hips and knees moderately flexed. Aspirin alone is usually all that is necessary for pain relief although, occasionally, Valium or codeine are helpful. After two days, relief is sufficient to allow the patient out of bed with crutches or a walker for toilet functions only. After three to five days, the lumbar and sciatic pain is usually markedly decreased and an exercise program is initiated using a modification of two of Williams' flexion exercises.[4] The first to be employed is the Williams' No. 3 knee-chest exercise. The pa-

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tient grasps both legs simultaneously just below the knee and rocks the knees up onto the chest as far as possible. Then the arms are relaxed to allow the hip to extend back to approximately 90 degrees. The exercise is repeated ten times, gradually increasing to 20 times. This regimen is repeated at least four times per day. The effect is to relax the paraspinal muscles, stretch out the lumbar spine, and tilt the anterior pelvis superiorly. After a few days of this exercise, the patient is usually sufficiently improved to begin the Williams' No. 1 abdominal strengthening exercise. This is done by performing situps with the knees and hips both moderately flexed. Flexion of the hip is necessary to relax the iliopsoas muscles and force the rectus abdominus muscle to come into play. This exercise can usually be done only about five times at the initial attempt, but should gradually be increased to 15-20 times, depending on the physical development of the individual. This exercise is also to be carried out at least four times per day. In addition, any excess weight should be lost.

By 10-14 days, the patient is able to be out of bed for a moderate amount of time without recurrence of lumbar or sciatic pain. Approximately 80 per cent of the patients can be successfully treated with this regimen and by four weeks go back to work. Heavy labor is not considered a realistic goal for such a patient and frequently a change in employment is necessary.

Operative Treatment

Loss of sphincter control, or the sudden appearance or progression of a neurological deficit are considered an absolute indication for surgical intervention. In addition, a failure to improve after 5-7 days of bed rest, or failure to maintain improvement after beginning ambulation and returning to work, are also relative indications for surgery. The type of surgery is dependent on the clinical presentation of the individual patient. The case of the younger individual seen with an acute episode of severe lumbar and sciatic pain with neurological deficit, but with no preceding history of chronic low back pain and no evidence of degenerative disease on x-rays, requires diskectomy alone. These patients are ambulated on the second postoperative day and discharged on the fifth to the seventh day. They may return to light work at two to three weeks.

The older patient with the additional history of chronic low back pain and x-ray changes of localized degenerative disk disease must have a fusion as well as diskectomy.[5] The posterolateral technique involves decortication of the transverse processes, articular processes, *pars interarticularis*, and excision of the cartilage from the facet joints. The entire bed is covered with "match sticks" of cancellous iliac bone. This is a far more difficult technique than the Hibbs fusion involving only the lamina, but it gives substantially better results. The patient is usually out of bed by the fourth or fifth postoperative day, and is discharged on the tenth day. A lumbosacral corset is occasionally used for comfort.

Those requiring a fusion involving L3 or above are immobilized for three months in a plaster cast with an extension down one leg to prevent motion of the pelvis. All fusion patients are not allowed to sit for a minimum of three months. They are allowed to stand, lie flat, or support themselves on a bar stool. In addition, a trapeze is prescribed to assist them in getting in and out of bed, and an elevated toilet seat to avoid flexing the hips. The object of this postoperative regimen is to decrease the amount of motion of the pelvis and the lumbar spine. Increased activity is allowed during the three to six months' period. Patients are allowed to return to light work during the six to nine months' period, and full work during the nine to twelve months' period. Heavy labor is not considered possible for any of these patients.

Results

Approximately 80 per cent are successfully managed with conservative treatment only. Of those patients requiring simple diskectomy, 90 per cent are successfully treated, but the remainder usually require a second surgical procedure.[6] Similarly, those patients who have evidence of mechanical back pain and thus require fusion have a success rate of about 90 per cent.[7] These patients clearly have a much greater morbidity in view of the more extensive surgery and marked limitation of activities for nine months following surgery. The philosophy of adding a fusion to diskectomy as a form of insurance—because the patient appears to have a more severe problem or is having a second diskectomy—is to be condemned. On many occasions, fusion is definitely indicated as a primary procedure; whereas, in other cases it is conceivable that the patient may need a second diskectomy but not require fusion. It is also obvious that the results in patients with mechanical back pain would be much worse if one chose to avoid the postoperative morbidity by omitting the fusion.

Conclusion

With program of management described above, the low back pain patient can be approached with confidence. He can be reassured that he has a very common condition and that, with cooperation on the part of the patient and understanding on the part of the physician, he can be expected to gain sufficient relief to return to gainful employment.

(Continued on page 128)

Homosexual Aversion Therapy

Electric Shock Technique

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THE RESULTS of traditional psychotherapy with homosexual patients have generally been recognized as poor. Wolpe's 1958 book[1] stimulated interest in behavior therapy, including the use of behavior modification techniques for sexual deviations. Despite the apparent newness of this form of treatment, reports of pairing aversive electric shock with homosexual stimuli appear in the literature as far back as 1935.[2]

Although some work has been done using instrumental conditioning (*i.e.,* where the avoidance of homosexual material allows the patient to escape shock), this paper describes the use of a classical conditioning procedure where the anxiety induced by electric shock is paired with homosexual stimuli (pictures or fantasies) in an attempt to extinguish the homosexual symptoms. Rather than merely removing the homosexual impulses and behavior, an attempt is made to replace them with heterosexual interests by presenting female pictures and fantasies without shock. Thus, females, through the process of generalization, become rewarding experiences and are viewed more positively by being the source of anxiety reduction.

The following procedure has been simplified to make relatively few space and equipment demands, and could conceivably be used in a practitioner's office where requests for homosexual treatment are rather infrequent.

Procedure

Aversive conditioning sessions typically lasted 30-45 minutes and were scheduled daily (*i.e.,* five times weekly) during the first two weeks, twice weekly for the next two weeks, once weekly the following two weeks, and the final two sessions were held biweekly.

Prior to the first session, patients were asked to bring in a number of male and female pictures which they had found stimulating. Each of these was mounted on heavy, white $8\frac{1}{2} \times 11$ paper, and randomly numbered for use as stimuli. During the aversive conditioning session, these pictures were randomly presented and the patient was instructed to pick up and view each picture, holding it for at least 15 seconds before going on to the next one. He was further informed that he would be shocked randomly while holding the male pictures, but never while holding the female ones. Although, theoretically, patients could avoid shock by holding a female picture indefinitely, no one in the present series avoided the shock in this manner for longer than 50 seconds.

After going through all of the pictures once (or in the one case where few stimulus pictures were used, twice), the patient was asked to close his eyes and envision a scene which related to his homosexual behavior. Again, he was shocked randomly during these homosexual fantasies, but not during the alternate fantasies of heterosexual activity. Each fantasy period lasted three minutes, the sequence being in homosexual, heterosexual, homosexual, heterosexual order.

A modified SD5 Grassi stimulator was used to administer the electric shock through electrodes strapped to the dorsal and ventral surfaces of the wrist of the patient's nonpreferred hand, thus avoiding any current flow across the body. The therapist set the level of shock at a level high enough to be judged as unpleasant by the patient, and made further adjustments during the sessions, when necessary, to compensate for adaptation.

At the beginning of each session, the patient judged every stimulus picture as positive-negative, pleasant-unpleasant, or attractive-unattractive (whichever set of terms he selected as most descriptive of his feelings), and marked this on a five-point Semantic Differential type form[3] (*Figure 1*). Mean ratings for male and female pictures were graphically plotted as one measure of change during the course of treatment. Clinical reports served as another indication of change. Such reports typically centered around lessened anxiety, a reduction or cessation of homosexual compulsions, and improved heterosexual relationships.

The following illustrative case was randomly selected from among a group of five men treated by aversive therapy at the Medical Center during 1971 and 1972. Not all of these patients openly admitted

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Date .....

Picture No.	*Negative*	*Neutral*	*Positive*
1.	.....	.....	.....
2.	.....	.....	.....
3.	.....	.....	.....
4.	.....	.....	.....
5.	.....	.....	.....
6.	.....	.....	.....
7.	.....	.....	.....
8.	.....	.....	.....
9.	.....	.....	.....
10.	.....	.....	.....
11.	.....	.....	.....
12.	.....	.....	.....
13.	.....	.....	.....
14.	.....	.....	.....
15.	.....	.....	.....
16.	.....	.....	.....
17.	.....	.....	.....
18.	.....	.....	.....
19.	.....	.....	.....
20.	.....	.....	.....
21.	.....	.....	.....

Figure 1. Typical semantic differential rating form.

to homosexual activities (some complaining only of anxiety in homosexually stimulating situations), nor had all been discovered or arrested. There were both married and unmarried men in the group; their ages ranged from 28 to 40. All volunteered for this form of treatment, insisting that they genuinely wanted to change their behavior. Despite some differences, the procedures and course of treatment for the following case were quite representative of the group as a whole.

Case Report

The patient was a 39-year-old white male. A high school graduate, of high average intelligence, he held a clerical, white collar position and had a stable employment history. He had been married for nearly 20 years and was the father of three children, ranging in age from seven to 17. His homosexual activities dated back at least a dozen years, the present referral to the Department of Psychiatry being precipitated by his second known arrest for "soliciting for immoral purposes." As is characteristic of behavior therapy, a detailed history was not obtained nor was an extensive exploration of psychodynamics attempted. The primary focus was upon rapidly modifying his current antisocial behavior, regardless of its origin.

Years before, at the time of his first arrest, the court had ordered him to consult a psychiatrist. This he did but, since he was not specifically told to return or arrange for treatment elsewhere, this one evaluation session was his only therapeutic contact. When seen at the Medical Center, the patient contended that he had satisfactory heterosexual relations and could not understand what drove him to become involved homosexually. His wife was angry and upset at his homosexual behavior, especially with his recent arrest, but clearly stated that she would stand by and support him.

The patient was pleasant in appearance and behavior, but a rather passive individual who seemed to alternate between periods of homosexual acting out, and periods of anxiety and depression over this behavior. His acting out had a compulsive, highly repetitious quality to it which he seemed unable to understand. It appeared, however, that there was a central problem of trust, and that sexual closeness was substituted for personal, emotional closeness. Brief homosexual encounters were apparently perceived as less risky than deep lasting friendships and the discussion of personal feelings.

This patient received a total of 18 conditioning sessions over a 15-week period. During the first week his ratings of male pictures rapidly became less positive, while female pictures were viewed more positively *(Figure 2)*. These changes continued during the second week, becoming about as positive (female) or negative (male) as the limits of the five-point scale would allow. Following the second week, the ratings remained at a plateau to the final session.

During the fourth session, he noted a weakening of his compulsion to go to places where homosexuals congregated (including the place of his arrest) and he no longer felt the need to stare at men during his lunch hour or while traveling to and from work. On the sixth session, during the second week, he reported even fewer of these compulsive feelings. In the fifth week of therapy (the thirteenth session), he noted that his sexual life at home had improved "miraculously," that it "couldn't get any better," and that there now had been a period of "several weeks" when he had been free of homosexual urges. He continued to report a lack of homosexual compulsions and ideal heterosexual relations during the rest of treatment. Although the court had dismissed the charges against him, he completed the last two scheduled conditioning sessions. At the time of writing, only two months have elapsed since the end of his treatment and, although he continues to do well, he previously has had three- to four-month periods when he has done well without treatment.

Conclusion

This one case, representative of the group of five being treated for homosexuality by aversive conditioning, showed a relatively rapid and dramatic decrease in homosexual difficulties and a concomitant increase in positive heterosexual attitudes and behav-

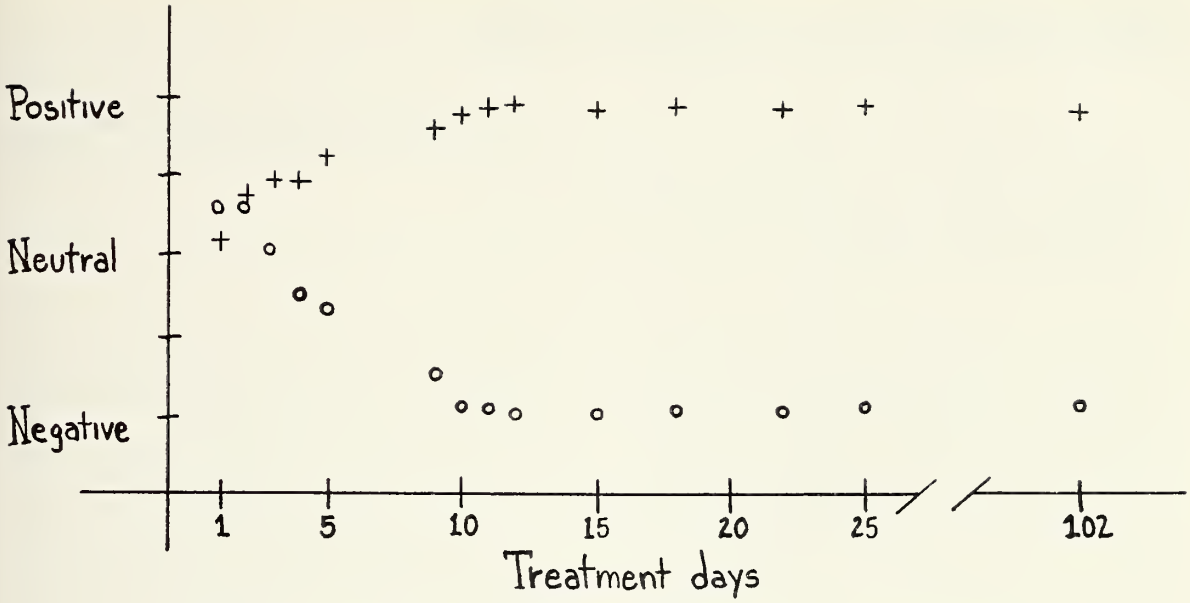

Figure 2. Ratings of male (o) and female (+) drawings during treatment.

ior. The brief period between the termination of treatment and this writing (two months) is not an adequate followup period. The two patients terminated some time ago have also been lost to adequate followup investigation; one was called into active service by the military (he reported concern that his problems were returning one year later), while the other was transferred out of the country by his employer.

Despite this, the technique shows definite promise of help for a group of patients who, it is frequently felt, are inappropriate candidates for psychotherapy.

References

1. Wolpe, J.: *Psychotherapy by Reciprocal Inhibition.* Stanford, Stanford University Press, 1958.

2. Max, L. W.: Breaking up a homosexual fixation by the conditioned reaction technique: A case study. *Psychol. Bull.* 32:734, 1935.

3. Osgood, C. E.; Suci, G. J. and Tannenbaum, P.: *The Measurement of Meaning.* Urbana, University of Illinois Press, 1957, pp. 81-84.

Fetal Monitoring

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2. Hon, E. H.: *An Introduction to Fetal Heart Rate Monitoring.* New Haven, Connecticut, Harty Press, Inc., 1968.

3. Quilligan, E. J.: The obstetric intensive care unit. *Hosp. Pract.* 1:61-69, 1972.

4. Caldeyro-Barcia, R.; Mendez-Bauer, C.; Poseiro, J. J. *et al.: The Heart and Circulation in the Newborn and Infant.* D. E. Cassels (Ed.), New York, Grune & Stratton, Inc., 1966, pp. 7-36.

5. Paul, R. H.: A clinical fetal monitor. *Obstet. Gynec.* 35:161-169, 1970.

6. Wood, C.: *Prenatal Life,* H. C. Mack (Ed.), Detroit, Wayne State University Press, 1970, pp. 183-204.

7. Beard, R. W.; Filshie, G. M.; Knight, C. A. *et al.:* The significance of the changes in the continuous fetal heart rate in the first stage of labor. *J. Obstet. Gynaec. Brit. Comm.* 78:865-881, 1971.

8. Schifrin, B. S.: Fetal heart rate monitoring during labor. *JAMA* 222:196-202, 1972.

9. Goodlin, R. C.: Comparison of instantaneous fetal heart rate recorders. *Obstet. Gynec.* 40:265-267, 1972.

10. Paul, R. H.: Clinical fetal monitoring. Experience on a large clinical service. *Amer. J. Obstet. Gynec.* 113:573-577, 1972.

11. Hon, E. H.: *An Atlas of Fetal Heart Rate Patterns.* New Haven, Connecticut, Harty Press, Inc., 1968.

12. Shenker, L. and Kane, R.: Doppler ultrasonic fetal heart rate monitoring during labor. *Obstet. Gynec.* 39:609-615, 1972.

13. Schifrin, B. S. and Dame, L.: Fetal heart rate patterns. Prediction of Apgar score. *JAMA* 219:1322-1325, 1972.

14. O'Gureck, J. E.; Roux, J. F. and Neuman, M. R.: Neonatal depression and fetal heart rate patterns during labor. *Obstet. Gynec.* 40:347-355, 1972.

15. Taylor, E. S.: Editorial comments. *Obstet. Gynec. Survey* 27:773-774, 1972.

16. Saling, E. W.: A new method of safeguarding the life of the fetus during labor. *J. Inter. Fed. Gynaec. Obstet.* 3: 100-110, 1965.

17. Bowe, E. T.; Beard, R. W.; Finster, M. *et al.:* Reliability of fetal blood sampling. *Amer. J. Obstet. Gynec.* 107:279-287, 1970.

18. Hon, E. H.: *Perinatal Life.* H. C. Mack (Ed.), Detroit, Wayne State University Press, 1970, p. 91.

Rheumatic Fever Evaluation

Secondary Prophylaxis Program

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SINCE THE INCEPTION of the Kansas Heart Association Secondary Rheumatic Fever Prophylaxis Program ten years ago, the Committee on Rheumatic Fever and Congenital Heart Disease has been concerned about the accuracy of the diagnosis of this disease as submitted on the application forms for the Registry, and the formerly low-cost and now, in cooperation with the Kansas State Department of Health, free prophylaxis.[1] In some instances, the diagnostic criteria as proposed by the American Heart Association[2] were not fulfilled. At other times, there was doubt about the state of disease activity or the existence and severity of residual rheumatic heart damage. Furthermore, it was indeed possible that some patients were being labeled as having had rheumatic fever when some other disease existed, thereby committing the individual to continuous medication for streptococcal prophylaxis when it was not indicated.

In order to obtain additional information about the patients on the Kansas Heart Association Rheumatic Fever Registry, the Committee proposed an evaluation program. This was approved by the Board of Directors of the Association for a two-year pilot project, beginning July 1, 1970, and supported through a grant-in-aid. This paper presents the summary of this two-year rheumatic fever evaluation program.

Methods and Materials

The patients under or close to the age of 21 years, who were on the Kansas Heart Association Rheumatic Fever Registry, were the subjects to be considered for the evaluation. A letter was first sent to each physician in Kansas who had patients on the Registry, explaining the project to him and asking his consent to evaluate his patients. Upon receiving the physician's written permission, the patient, or his family, was contacted. Each individual evaluated was seen by the senior author. A complete history was taken and physical examination, including blood sedimentation rate, electrocardiogram and chest roentgenogram, was given. Additional information was obtained from the physician making the original diagnosis, and from hospital records when available. Also, the original application for low-cost prophylaxis to the Kansas Heart Association was reviewed, and the information confirmed or clarified with the private physician.

Results

A. Results of Correspondence to Physicians and Patients

One hundred thirty-one letters were sent to physicians explaining the study and requesting permission for their patients' evaluation. One hundred eighteen physicians approved such evaluation; 13 disapproved. Many physicians had more than one patient on the Rheumatic Fever Registry. All 182 patients whose physician approved their evaluation were contacted by letter explaining the program. Of the 138 replies (76%) received, 126 indicated interest in the study, and 12 noted a lack of desire to be evaluated for the correctness of the rheumatic fever diagnosis. Of the 126 subjects with both physician and self-approval, 107 completed the evaluation over the two-year period. On July 1, 1970, there was a total of 311 patients on the Rheumatic Fever Registry; as of July 1, 1971, the number was 295.

B. Results of Patient Evaluations

The age of the patients ranged from 7 to 22 years. None of the 107 patients evaluated has active rheumatic fever. A definite retrospective history of rheumatic fever was obtained in 40 patients; 9 had doubtful, and 58 had no evidence of a retrospective history of rheumatic fever. A normal erythrocyte sedimentation rate was present in 100. The electrocardi-

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ogram was normal in 102, and the chest roentgenogram was normal in 101. A functional innocent murmur was heard in 32. One patient had congenital heart disease, a mild valvular pulmonary stenosis, and secundum atrial septal defect with a small left-to-right shunt.

Of the seven patients with an elevated sedimentation rate, two had rheumatoid arthritis, one had ulcerative colitis, and four had had recent upper respiratory infections. Of the five patients who had abnormal electrocardiograms, one had congenital heart disease and four had rheumatic heart disease, two with mitral regurgitation alone and two with combined aortic and mitral regurgitation. Of the six patients with abnormal chest roentgenograms, one had congenital heart disease and five had rheumatic heart disease, two with mitral regurgitation alone and three with combined aortic and mitral regurgitation.

Of the 49 patients with either a definite or doubtful history of rheumatic fever, the major manifestations were as follows: polyarthritis, 37; carditis, 15; Sydenham's chorea, 4; erythema marginatum, 1; no patient had subcutaneous nodules. Of the 37 patients with histories of polyarthritis, eight had carditis and one had erythema marginatum. Of the 15 patients with carditis, eight also had polyarthritis. The single patient with erythema marginatum also had polyarthritis.

All eight of the patients with rheumatic heart disease had mitral regurgitation, four with coexistent aortic regurgitation. Furthermore, in only two of the eight with rheumatic heart disease was the cardiac damage not already known. Of the six with previously known rheumatic heart disease, two already had been evaluated at the University of Kansas Medical Center.

In five patients, diseases other than rheumatic fever were diagnosed. Three had rheumatoid arthritis, two of whom were siblings. One patient had active, chronic ulcerative colitis, and one teenage boy had hysteria with severe adjustment reaction of adolescence.

Discussion

Although the ease with which acute, active rheumatic fever may be diagnosed has been aided by the original publication of Jones[3] in 1944 and subsequent revisions,[2] the professional acumen of physicians is severely taxed to arrive at the correct diagnosis. It is unfortunate that there remains no single or combination of laboratory tests to indicate which patient has had, currently has, or will develop rheumatic fever. In spite of strong efforts to teach undergraduate and graduate physicians the methods for accurate diagnosis of rheumatic fever, some patients are underdiagnosed, and many are labeled as having the disease when it is not present.

A number of factors make it highly desirable to make the correct diagnosis of rheumatic fever. Recurrent rheumatic fever is preventable, as are most cases of initial attacks. All individuals who have had a documented acute bout of rheumatic fever should be on continuous prophylaxis to prevent intercurrent streptococcal infections. When such prophylaxis is either not recommended or is not adhered to, recurrent rheumatic fever may occur in up to 60 per cent of individuals.[4] Subsequent episodes of rheumatic fever may lead to progressive rheumatic heart disease. Streptococcal prophylaxis must be continued for at least five years after the last rheumatic fever attack, or until the individual has reached 18 years of age, whichever is later; however, prophylaxis should continue indefinitely if residual rheumatic heart disease is present.

On the other hand, if the individual was only suspected of having acute rheumatic fever but actually did not have the disease, continuous prophylaxis is not only unnecessary but contraindicated. On rare occasions, penicillin or sulfadiazine sensitivities arise. The long-term expense of continuous medication is appreciable. Furthermore, the person who has had rheumatic fever should be examined by his physician at periodic intervals to be sure recurrence has not occurred, and that rheumatic heart disease is not progressive. Life and health insurance companies are reluctant to insure a person who has had rheumatic fever, and then only with an additional premium. The military services will not accept an individual with a history of rheumatic fever, particularly if residual rheumatic heart disease is present. Physicians are far too busy to be burdened with the overdiagnosis of rheumatic fever. Lastly, when a patient is entered onto the Rheumatic Fever Registry and approved for streptococcal prophylaxis, this may be interpreted that the Kansas Heart Association concurs with the diagnosis and management. Such a misconception gives a false sense of security to the patient and his physician, and makes withdrawal of an erroneous diagnosis even more difficult.

The results and implications of this study are thought-provoking. It is not surprising that none of the 107 patients had active rheumatic fever, since the evaluations were carried out at varying intervals after the initial diagnosis was made. However, it is noteworthy that 58 of the 107 patients could not be documented to have had a retrospective diagnosis of rheumatic fever, even though great effort was taken to gather such necessary documentary evidence from a variety of sources. These individuals probably never did have the disease, and should not have been

on the Rheumatic Fever Registry and continuous prophylaxis. It should be emphasized that this diagnostic service was specifically set up so that physicians who had patients on the Registry and were concerned about the accuracy of the diagnosis could avail their patients of this evaluation program. In most instances, the physicians themselves were desirous that an accurate diagnosis be made and that delabeling take place. Furthermore, prophylaxis could be discontinued in those patients with normal hearts who did not have bona fide retrospective histories of rheumatic fever.

None of the nine patients with doubtful histories of rheumatic fever had rheumatic heart disease. Of the 40 patients with definite retrospective histories of rheumatic fever, eight had documented rheumatic heart disease. This 20-per cent figure is perhaps slightly lower than what would have been expected. It could well be that some physicians did not recommend that their patients be evaluated since they were already cognizant of the valvular damage present. It was possible to specifically delineate the type and severity of the rheumatic heart disease in all eight patients.

The finding of an innocent murmur in 32 of the 107 patients is not an unusual incidence.[5] Functional murmurs were equally encountered in the group with definite rheumatic fever histories and in those with no evidence of retrospective rheumatic fever. In 22 instances, the innocent murmur may have been previously misinterpreted as that of an organic nature, since the original application to the Registry and prophylactic program indicated either suspected or definite rheumatic heart disease. One of the patients in the latter group did prove to have congenital heart disease.

A diagnosis other than rheumatic fever was established in five patients. Since three of these had rheumatoid arthritis, it is apparent that this disease continues to be difficult to differentiate from rheumatic fever.

Summary

A two-year experience with the Kansas Heart Association Rheumatic Fever Evaluation Program is presented. Of the 107 patients studied, 58 had no evidence of a retrospective history of rheumatic fever and could be recommended to their physicians for streptococcal prophylaxis discontinuation. In eight of the 49 patients with definite or doubtful histories of rheumatic fever, rheumatic heart disease was confirmed or established with its type and severity identified. In addition to one patient with congenital heart defects, five were noted to have conditions other than rheumatic fever: three had rheumatoid arthritis, one had active ulcerative colitis, and one had a severe hysterical conversion reaction.

This initial experience with the Rheumatic Fever Evaluation Program has been well received by both private physicians and their patients. Diagnostic accuracy can be enhanced and continuous streptococcal prophylaxis can be limited to those patients with documented histories of rheumatic fever. The Rheumatic Fever and Congenital Heart Disease Committee of the Kansas Heart Association recommends the continuation of this evaluation protocol as an important and integral part of the Kansas Rheumatic Fever Registry and Secondary Prevention Program.

References

1. Stanley, W. A.; Wilcox, D. E. and Diehl, A. M.: The Kansas secondary rheumatic fever program—past, present and future. *J. Kansas Med. Soc.* 73:451, 1972.

2. Jones criteria (revised) for guidance in the diagnosis of rheumatic fever. Ad Hoc Committee American Heart Association. *Circulation* 32:664, 1965.

3. Jones, T. D.: The diagnosis of rheumatic fever. *JAMA* 126:481, 1944.

4. Roth, I. R.; Ling, C. and Whittemore, A.: Heart disease in children. A rheumatic group. *Amer. Heart J.* 13: 36, 1937.

5. Singh, S.; Luckstead, E. F.; Shakibi, J. and Diehl, A. M.: Murmurs—innocent or otherwise? The innocent cardiac murmurs of childhood. *J. Kansas Med. Soc.* 72:142, 1971.

Cardiac Complications

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References

1. Zeek, P. M.: Periarteritis nodosa: A critical review. *Amer. J. Clin. Path.* 22:777-790, 1952.

2. Benyo, R. B. and Perrin, E. V.: Periarteritis nodosa in infancy. *Amer. J. Dis Child.* 116:539-544, 1968.

3. Roberts, F. B. and Fetterman, G. H.: Polyarteritis nodosa in infancy. *J. Pediat.* 63:519-529, 1963.

4. Chamberlain, J. L. and Perry, L. W.: Infantile periarteritis nodosa with coronary and brachial aneurysms: A case diagnosed during life. *J. Pediat.* 78:1039-1042, 1971.

5. Tang, P. H. L. and Segal, A. J.: Polyarteritis nodosa of infancy; fatal late complications. *JAMA* 217:1666-1670, 1971.

6. Kissane, J. M. and Smith, M. G.: *Pathology in Infancy and Childhood.* St. Louis, The C. V. Mosby Co., 1967, pp. 409-412.

7. Faber, H. K. and Rather, L. J.: Sudden death due to coronary insufficiency resulting from healed polyarteritis nodosa in a boy of seven years. *Stan. Med. Bull.* 18:10-20, 1960.

8. Sinclair, W. J. and Nitsch, E.: Polyarteritis nodosa of the coronary arteries. *Amer. Heart. J.* 38:898-904, 1949.

9. Munro-Faure, H.: Necrotizing arteritis of the coronary vessels in infancy. *Pediat.* 23:914-926, 1959.

10. Gore, I.; Smith, J. and Clancy, R.: Congenital aneurysms of the coronary arteries with report of a case. *Circulation* 19:221-227, 1959.

11. Frohnert, D. P. and Sheps, S. G.: Long term follow-up study of periarteritis nodosa. *Amer. J. Med.* 43:8-14, 1967.

The Mystery Virus

The Elusive E-B Virus: Guilty or Not Guilty?

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THE CASE of this elusive suspect, namely the Epstein-Barr (E-B) virus, made its appearance in the medical literature in 1964, when Epstein, Achong, and Barr described herpes-like particles observed by the electron microscope in lymphoblasts, grown in vitro from a tumor biopsy of a Ugandan child with Burkitt's lymphoma. At this writing, however, the E-B virus is suspected in the etiology of several human diseases of diverse pathological features, such as infectious mononucleosis, Guillain-Barre syndrome, and postnasal carcinoma. Although we now know that one virus can produce different clinical syndromes (*e.g.,* an echovirus can cause respiratory, gastrointestinal, or central nervous system (CNS) disease), the E-B virus itself, as well as the manner in which it is associated with the various human diseases, are of an unusual nature. Below are described the properties of this virus and its etiologic association with human disease is discussed. It will be noted that an etiologic role for this virus in many human diseases with which it is associated in one way or another is plausible, but far from established.[1, 2]

Nature and Properties

Physicochemical

The original report by Epstein *et al.,* described particles resembling herpes simplex virus in structure but about 20 per cent smaller, *i.e.,* 110-115 nm in size (nanometer = $m\mu = 10^{-9}$ meter). While mature particles enclosed in a cellular membrane were observed only in the cytoplasm, immature particles with or without a nucleoid (central DNA core) were present in both the nucleus and the cytoplasm.[3] Subsequent work showed that about 10 per cent of the extracellular viral particles are enveloped, and these are comparable in size to that of other human members of the Herpesvirus group, namely, herpes simplex virus types 1 and 2, varicella-zoster virus and cytomegalovirus. These viruses possess a double-stranded DNA coated with 162 capsomeres (subunits of the capsid, which is the protein coat of the virus) arranged in a cubic symmetry. The mature infectious virus (virion) has a lipid-containing envelope. The four human members are antigenically distinct from one another.

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Biological

The unique feature of the E-B virus is its lack of biological activity as manifested by other members of the group. In contrast to other members, attempts to infect and produce cytopathic effects (CPE) in human and nonhuman fibroblastic and epithelial cell cultures with this virus have generally given negative results. Probert and Epstein, however, reported morphological transformation (into large polygonal cells) of human embryonic fibroblasts by this virus as contained in an extract of lymphoblasts grown in vitro from a Burkitt's lymphoma. These transformed cells did not release any virus.[4] Earlier, Bergamini *et al.,* observed morphological changes associated with resistance to superinfection with a variety of viruses in human amnion cell cultures infected with cell-free extracts from various Burkitt's lymphomas.[5] Moreover, most attempts to infect or produce tumors in various laboratory animals with the E-B virus have been unsuccessful. However, Stewart *et al.,* have reported that intracerebral inoculation of hamsters with E-B virus-containing cell cultures derived from Burkitt's lymphomas produced a fatal CNS syndrome that could be serially transmitted in the same host.[6]

An elusive herpes-like (E-B) virus with an unusual biological activity was first dicovered by electron microscopy in lymphoblasts derived from Burkitt's lymphoma, and is now associated with a variety of human diseases. Attempts to link this virus etiologically with these human diseases are generally based on detection of specific viral antibodies in the patient's sera and observation of viral particles, viral antigens, or viral genome in the patients' affected cells.

While infection of fibroblastic and epithelial cell cultures and various experimental animals with this agent has not been generally successful, human lymphoid cells have proved susceptible to E-B virus. As noted above, the virus was originally observed in lymphoblasts derived from a Burkitt's lymphoma. Subsequently, many lymphoblastoid cell lines that

grow continuously in vitro were derived from various Burkitt's lymphomas. Some of these cell lines (EB3 and P3J cells) consistently contain E-B virus, while others, such as Raji cells, do not. E-B virus has also been observed in many lymphoblastoid cell lines derived from such diverse sources as human postnasal carcinomas, leukocytes of patients with infectious mononucleosis, leukemia, and other malignant and non-malignant diseases, as well as from leukocytes of normal humans and of certain normal subhuman primates. The percentage of E-B virus positive cells in various lymphoblastoid cell lines varies from under 1 per cent to about 10 per cent. However, enhancement of virus-positive cell percentage (up to 50-70%) has been achieved by a temperature cycling procedure (at 37C, 32C, and 37C consecutively), maintenance of the cell cultures in an arginine-deficient medium, and cocultivation with Vero (African green monkey-kidney) cells.[7-9]

While E-B viral particles or structural antigens are detectable in certain cells of many lymphoblastoid cell lines, cells from biopsies of Burkitt's lymphomas and postnasal carcinomas have been also shown to contain E-B viral genome which indicates a latent infection with this virus.[10-12] Apparently, in-vitro cultivation induces the activation of a latent virus (viral particle formation) by de-repressing a repressed E-B virus genome. The viral particles in the lymphoblastoid cell lines can be readily detected by both electron microscopy (EM) and fluorescent antibody (FA) techniques. The latter technique involves an indirect fluorescent antibody test on acetone-fixed cells, using a fluorescent dye-labeled serum with a high antibody titer against E-B virus. The antigen thus detected by the FA technique is called the viral capsid antigen (VCA), and corresponds to the viral particles detected by the EM technique in the same cells. Cell lines that harbor E-B virus also contain complement fixing (CF) antigens that can be extracted and used in the CF test for the detection and titration of E-B virus antibody in various sera. The so-called viral (V) and soluble (S) CF antigens can be extracted from virus-containing cells (same as VCA), and from the cell-free culture fluids respectively. Related soluble CF antigens have been obtained from certain virus-free lymphoblastoid cell cultures.[13] The gel precipitation test with an antigen extracted from virus-containing cell lines (apparently the same as viral capsid antigen) has also been used for the detection and titration of E-B virus antibody.[14] More recently, two additional E-B virus-induced antigens (the early antigen [EA] and the membrane associated antigen [MA]) have been detected in lymphoblastoid cell lines. The EA appears in the cytoplasm before the formation of VCA. It is detected by the FA technique in acetone-fixed cells abortively infected with the E-B virus. The EA is a complex containing two separate components, D (diffused) and R (restricted). Antibodies against the D component appear consistently in infectious mononucleosis (IM) and postnasal carcinoma, while those against the R component are more specific for Burkitt's lymphoma. The MA antigen represents E-B viral envelope components and can be detected by the FA technique on the surface of the living target cells some 24 hours after infection with the virus.

Established (continuously growing in vitro) lymphoblastoid cell lines that do not show E-B virus by EM and FA techniques are believed to contain the viral genome (instead of viral particles) integrated into their cellular genomes as these originally normal cells became infected with this virus and, thus, were rendered transformed and continuously growing cell lines. E-B viral DNA has been detected by DNA-DNA or DNA-cRNA (complementary RNA) hybridization technique in all such lymphoblastoid cell lines tested.[11-12] The CF and MA antigens have also been detected in many E-B virus-negative cells. Moreover, such consistently virus-negative cell lines as Raji (from a Burkitt's lymphoma) and NC37 (from the leukocytes of a patient with pneumonia) can be rendered virus-positive by treatment with 5-bromodeoxyuridine (BrdU). It is believed that BrdU activates viral formation (first EA followed by VCA both detected by FA and then viral particles detected by EM) and the infectivity of the newly synthesized virus in such treated cell lines has been demonstrated by cocultivation with normal peripheral leukocytes as described below.[15, 16]

The evidence for the biological activity of E-B virus is largely dependent on its effects on normal leukocytes. Cell-free extracts of E-B virus-containing cell lines (P3J-HR1-K), inoculated into short-term cultures of leukocytes from E-B virus-seronegative normal individuals, have caused blastoid transformation and long-term growth potential in such cells. The transformed cells show chromosome aberrations and E-B virus antigens. The transforming effect could be specifically neutralized by sera containing E-B virus antibody. Similar extracts from E-B virus-free cell lines (Raji) did not show the transforming activity.[17] The transforming effects of cell-free E-B virus preparations have been induced not only in adults' leukocytes that may undergo spontaneous blastoid transformation, but also in fetal leukocytes that do not transform spontaneously over long cultivation periods. Squirrel monkey and marmoset leukocytes also have been transformed (with infectious E-B virus production) by similar cell-free E-B virus preparations.[18] Moreover, the heterotransplantability in newborn mice, injected with antilymphocytic serum of two human lymphoblastoic cell lines transformed in vitro by E-B virus, has also been demonstrated.[19] The above data leave little doubt in re-

gard to the close association between the E-B virus and the induced lymphoproliferation. Whether E-B virus and the observed lymphoproliferation (blastoid transformation accompanied by synthesis of viral genome and antigens) are the sole cause, and the specific and direct effect, is yet to be established.

E-B Virus and Human Disease

Currently, the E-B virus is suspected of playing a role in the etiology of several human diseases. The first of these was Burkitt's lymphoma, in which the tumor cells grown in vitro showed E-B viral particles and antigens, and the majority of the patients with this tumor showed high-titered specific antibodies. Subsequently, other diseases were linked with this virus mainly because: (1) lymphoid cells derived from patients with these diseases and cultured in vitro showed viral particles or viral antigens; and (2) most such patients had higher prevalence rates and higher titers of E-B virus antibodies as compared to the controls. As further work on this virus and its associated diseases was conducted at various laboratories throughout the world, many ambiguities emerged which led to different interpretations of the presently available data. These will be discussed below.

Burkitt's lymphoma

This tumor was first described by D. P. Burkitt in 1958, as found occurring among children living in warm humid lowlands of Uganda, Central Africa. The tumor has a predilection for the jaw and occurs predominantly among boys aged 2-14 years, with a peak incidence at five years of age. If untreated, it grows rapidly, often metastasizing to the abdomen and causing death within six months. Clinically, it manifests itself as an osteolytic lesion in the alveolar process of either the maxilla or mandible of the jaw, or as an abdominal mass with little generalized lymphadenopathy and only an occasional leukemic transformation. Pathologically, the tumor is composed of primitive lymphoreticular cells. The characteristic but not specific feature is the scattering of non-neoplastic histiocytes containing ingested pyknotic nuclei and cell debris that give a "starry sky" appearance to the tumor. The tumor is remarkably radiosensitive and responds favorably to cyclophosphamide.

The original observations indicated a climatic rather than racial distribution of this tumor throughout the equatorial region of Africa. Time-space clustering and a systemic drifting of the clusters were also observed. Moreover, the tumor was more or less restricted to children, except among migrants from low- to high-risk regions. These observations suggested an arboviral etiology. However, attempts to incriminate an arbovirus were unsuccessful while certain common viruses (herpes simplex, echovirus, and reovirus) were isolated from the tumors. The etiologic problem, however, became centered around the E-B virus when the latter was observed by the EM and FA techniques in cultured lymphoblastoid cell lines derived from Burkitt's lymphomas (see above). Moreover, almost all patients with this tumor showed a high titer of E-B virus antibodies.

Subsequently, the same type of tumor with identical clinical, pathological, and immunological features was reported from different regions of the world, including the United States. EM and FA techniques applied to cells derived from these cases also gave identical results. More recently, E-B viral genome has been found in biopsy cells from Burkitt's tumors.[10] However, since E-B viral particles, its structural antigens, or its genome have also been observed in all lymphoblastoid cell lines—whether derived from diseased or normal individuals—and in biopsy cells from postnasal carcinomas (viral genome), the proposed role of E-B virus as the sole etiologic agent in Burkitt's lymphoma cannot be accepted. A more plausible proposal is that malaria is a contributory factor in the etiology of this tumor, as cases of Burkitt's lymphoma are concentrated in tropical Africa and New Guinea, where malaria is holoendemic. It is postulated that chronic malarial infection exerts severe persistent stimulus and stress on lymphoid tissues, and this renders such tissues more susceptible to the transforming activity of the E-B virus. The mechanism of the interaction between the malarial parasite, the E-B virus, and the host lymphoid tissue is unknown. One hypothesis is based on the discovery that latent oncogenic viruses can be activated by the host's immune response. Here the feedback loop (high-affinity IgG antibodies produced under normal conditions) regulates the immune response and, thus, prevents activation of latent viruses in lymphocytes. The malarial parasite in a chronically infected host can disrupt the feedback controls of the immune response, as the parasite both stimulates the lymphoid tissue and partially suppresses the production of the proper antibodies. The above hypothesis does not propose an etiologic role for E-B virus in lymphomas. Rather, it contemplates that the activated E-B virus may be a passenger infecting the tumor cells secondarily, a virus activated more readily and earlier than the causative oncogenic virus, or an intermediary agent in the activation of an oncogenic RNA virus (which is generally considered a more likely cause of this lymphoma).[20] Another thesis involves antimalarial drugs, such as pyrimethanine (which may be immunosuppressive or carcinogenic), rather than the malarial parasite itself in the production of an altered immune system in the host upon which the E-B virus acts and may induce Burkitt's lymphoma.[21] The presently available data only indicate that E-B virus and chronic malaria are associated with this tumor, but whether either or

both (as cofactors) are directly involved in the etiology of Burkitt's lymphoma is not established.

Infectious mononucleosis (IM)

The E-B virus became involved in the search for a viral etiology for infectious mononucleosis in August 1967, because of a fortuitous observation in a 21-year-old technician who worked in a laboratory engaged in work with E-B virus-containing cell lines. Following an episode of laboratory proven infectious mononucleosis, she developed an antibody titer of 1:40 against E-B virus, and her leukocytes grew well in vitro. This suggested an etiologic role for this virus in IM, and an extensive investigation of this problem followed. Although it was then known that about 80 per cent of a typical low-income population in the U. S. had E-B virus antibodies and that the virus had a world-wide distribution, a striking high-titered antibody finding temporally related to the acute phase of many IM cases was documented. Moreover, lymphoblastoid cell lines, containing E-B viral particles, viral structural antigens, or viral genome were established from the peripheral blood of IM patients. A review of these data and a summary of the clinical, hematological, and epidemiological aspects of this disease are presented elsewhere.[22]

Since E-B virus is associated with a variety of human disease, the more recent work has been aimed at establishing a specific role (as a driver rather than a passenger) for the virus in IM. In one approach, attempts to detect the E-B virus in oral excretions of patients with IM have been made. Filterable agents, capable of transforming umbilical cord leukocytes into lymphoblastoid cell lines containing E-B virus specific complement fixing antigens and E-B virus genome, were found in patients with IM, as well as in healthy controls with serologic evidence of a previous E-B virus infection. These findings neither contradict nor prove an etiologic role for E-B virus in IM. Apparently, lymphoid cells in the oropharynx may serve as either the source or the target of E-B virus.[23] Another approach, aimed at substantiating the formerly reported serologic findings as a significant rise in antibody, could not be detected in most cases of IM, and the temporal relationship between IgM (19S) and IgG (7S) in E-B virus antibodies had not been determined. It is known that a primary antigenic stimulation normally causes the synthesis of IgM antibodies, which subsequently decline and are replaced by IgG antibodies within a few weeks. Thus, antibodies from a past infection are normally of the IgG class. Utilizing the immunoferritin test under the electron microscope, it was found that antibodies against E-B virus in IM patients were associated with IgM, while those in normal individuals were associated with IgG.[24] Moreover, in another study utilizing the FA technique, IgM antibodies to E-B virus were demonstrated in all patients manifesting clinical IM. However, these antibodies were found only during the several weeks following the onset of symptoms, which indicates a recent infection with E-B virus coinciding with the synthesis of IgM antibodies.[25] In the same line of approach, sera collected before and after clinical IM were tested for their neutralizing (inhibiting) activity against the transforming capacity of E-B virus preparations for human leukocytes. While the pre-illness sera lacked such neutralizing activity, sera taken after illness had titers of 1:4 or higher.[26]

More direct evidence tending to fulfill the Koch's postulates can also be cited. Inoculation of an E-B virus preparation into a seronegative leukemic patient produced clinical IM after seven weeks. The patient showed a positive Paul-Bunnell test and developed E-B virus antibodies.[27] Moreover, transmission of IM by blood transfusion in at least two cases has been documented. Clinical symptoms, seroconversion (E-B virus antibodies), and positive Paul-Bunnell test were observed.[28, 29]

The data reviewed above constitute an impressive conglomerate of evidence for the etiological involvement of E-B virus in IM. However, the evidence is tempered by certain findings that shake its very foundation. Infection with E-B virus is extremely common and worldwide in distribution. It apparently occurs in early infancy or even in utero, without clinical disease. E-B virus antibodies are detected before those of such common childhood infections as herpes simplex and cytomegalovirus infections. The prevalence of E-B virus antibodies in children is unusually high and may approach 100 per cent by four years of age. Since many sera collected as early as feasible after onset of clinical symptoms show significantly high titers of IgG antibodies, the possibility that the observed seroconversion in IM patients manifests an anamnestic rather than a primary response is strongly suggested. Moreover, there is no evidence that IM represents a primary infection with E-B virus. IM has been designated a syndrome rather than a disease as a number of different agents (Rickettsia sennetsui, Toxoplasma gondii, and cytomegalovirus) have been associated with clinical features closely related to those of IM. If E-B virus is causally related to clinical IM, the relationship must be unusual among all viral diseases. We know that the disease is infectious, but all attempts to transmit the disease to normal susceptible humans and laboratory animals with various clinical specimens have failed. In view of the universal infection with this virus at an early age and the presence of its antibodies in normal and diversely diseased individuals, as well as the detection of its physical particles or their footprints in lymphoblasts from patients with IM, Burkitt's lymphoma, post-

nasal carcinoma, and those from normal individuals, a definitive etiologic relationship needs more convincing data than what is now on hand.

Postnasal carcinoma (Nasopharyngeal carcinoma)

This is a rare tumor in the North Americans and Europeans, but is of major importance in the Chinese, Malays, Indonesians, Dayaks and Kadazans of Borneo, Thais, Vietnamese and, to a lesser extent, Filipinos. The tumor is essentially made up of epithelial or epithelioid cells heavily admixed with lymphocytes (lymphoepithelioma).[30] The etiologic involvement of E-B virus in postnasal carcinoma is based on frequent incidence and higher titers of E-B virus antibodies in patients with this tumor as compared to matched controls. Moreover, E-B viral genome has been detected in tumor biopsy cells, and viral particles or viral structural antigens have been observed in lymphoblastoid cell lines derived from such tumors.[10, 11] As the above criteria are not specific for this tumor, no etiologic role for E-B virus can be established. Moreover, no E-B virus-specific IgM antibodies could be detected in patients with postnasal carcinoma.[32] In another study, sera from patients with this tumor showed higher antibody titers to both herpes simplex and E-B viruses; this suggested a reactivation of a latent infection with the former virus in the postnasal carcinoma patients.

Sarcoidosis

This is a generalized systemic granulomatous disease that may involve any tissue or organ (most commonly the lymph nodes, lungs, spleen, liver, bones, skin, eyes, and salivary glands). The disease affects individuals aged 20-40 years, with marked geographic and ethnic variations (more frequently in southeastern U. S., with higher incidence among the Blacks, and in women). Clinical manifestations are protean and depend on tissues and organs involved. Histopathologically, it is a noncaseating epithelioid granuloma (a dense nodular hard tubercle), usually containing giant cells of either the foreign body or Langhans type, with a relatively intact reticulum. Necrosis is absent or minimal, and fibrosis develops as the lesion progresses toward healing. The Kveim skin test (using a suspension of human sarcoidal tissue) is usually positive (formation of a sarcoid-like granuloma at the site of injection) in early or active cases, especially when lymphadenopathy is marked.

The etiology is still undetermined. An abnormal immunologic response to a variety of antigens (microorganisms, pine tree pollen) has been proposed, as patients with this disease show anergy (exhibited by impaired cellular immunity) which is accompanied by increased humoral antibody formation (high levels of immunoglobulin). In 1970, one report showed greater prevalence and higher titers of E-B virus antibodies in sarcoidosis patients when compared to the control group.[34] A subsequent study showed that most patients with sarcoidosis had higher titers not only of E-B virus (VCA) antibodies, but also of cytomegalovirus and herpes simplex virus antibodies. No significantly higher antibody titer against EA of E-B virus was detected in the same group, and some patients had no VCA antibodies. Certain lymphoblastoid cell lines that contained E-B viral antigens were also established from lymph nodes of these patients.[35] As the above observations have been associated with sarcoidosis as well as with several other unrelated diseases, they do not constitute an etiologic role for E-B virus in this disorder.

Hodgkin's disease

This is generally considered a histologically more complex form of malignant lymphomas that involves lymph nodes (initially in the neck) and lymphoid tissues elsewhere, *e.g.,* alimentary tract, spleen, and bone marrow. However, it occurs in several histologic and clinical forms, and more frequently in male whites with two age incidence peaks: 15-34 and over 50 years. Histopathologically, the distinctive feature is the presence of Reed-Sternberg cells which are atypical histiocytes (15-45 μ in diameter), with multiple nuclear division or multilobed nuclei without cytoplasmic division, and round prominent nucleoli that are often surrounded by clear zones (owl-eyed appearance).

The etiology is still undetermined. An infective nature for this disease with a carrier state and a long incubation period was suggested by an investigation of 12 interlinked cases, of which two were familial and the rest were high school classmates, friends or relatives, who were linked together either directly or by contact with a graduating class.[36] The E-B virus became involved when elevated antibody titers to this virus were detected in patients with Hodgkin's disease, particularly of certain histologic types.[37] Moreover, in-vitro cultivation of cells derived from patients with Hodgkin's disease was accompanied by blastoid transformation and the appearance of E-B virus-like agents.[38] However, by utilizing the molecular hybridization technique, radioactively labeled DNA complementary to the RNA of Rauscher murine leukemia virus detected homologous RNA in Hodgkin's lymphoma cells.[39] More recently, a hypothesis proposing that initially T (thymus-derived) lymphocytes become infected with a tumorigenic virus causing a change in their cell-surface antigen was advanced. Subsequently, normal T lymphocytes react to this antigenic change in a protracted fashion (similar to a chronic graft-virus-host reaction), which eventually leads to formation of

neoplastic histiocytes (Reed-Sternberg cells).[40] A tumor-associated antigen shared by three patients with this disease has also been reported.[41] The above data obviously lend support to the first sentence in this paragraph, namely, the etiology is still undetermined.

The Guillain-Barre (G-B) syndrome

This is an ascending paralysis of the extremities with a typical sudden onset. There is increased protein in the CSF without a corresponding increase in cell count. It is one of the recognized complications of IM which is now associated with E-B virus. Accordingly, the presence of unusually high titered E-B virus antibodies in G-B syndrome patients has been investigated. In one study, the presence of such antibodies in a G-B syndrome case with an antecedent mild IM (both with consistent clinical manifestations and laboratory findings) was established.[42] Another study showed very high titers of E-B virus antibodies in five patients with G-B syndrome; two of these had clinical IM, while the other three had neither clinical nor laboratory evidence of antecedent or concurrent IM.[43] The above findings have been interpreted by certain investigators to strongly suggest an association between E-B virus and G-B syndrome. This reviewer, however, does not believe that the above findings warrant such an interpretation.

Connective tissue diseases

A number of these disorders, notable among them systemic (disseminated) lupus erythematosus (SLE), have been investigated for possible etiologic association with E-B virus. Patients with SLE share the immunologic feature of producing antinuclear antibodies with IM patients. SLE and certain other connective tissue disorders, *e.g.,* rheumatoid arthritis, polymyositis, and systemic sclerosis included in one study, also show manifestations of aberrant lymphoid function or lymphoproliferation or both, which make them likely to have an etiologic association with E-B virus. Sera from groups with these diseases were tested for E-B virus antibodies by immunofluorescence and immunodiffusion techniques. Contrary to an earlier report,[44] raised levels of E-B virus antibodies could not be detected in SLE patients, as well as in patients with the other connective tissue diseases. However, the immunodiffusion technique showed a greater mean number of bands with sera of SLE patients as compared to the control group. This antibody activity was not considered comparable to that exhibited by other diseases associated with E-B virus and, hence, no etiologic role for this virus in SLE could be established.[45]

Acute lymphocytic leukemia (ALL), Crohn's disease (CD) and Cat-scratch disease (CSD)

These three diseases have been investigated for an association with E-B virus because of certain common features with diseases known to be associated with this virus. IM and ALL have been considered as benign and malignant forms of the same underlying disease process. A significant number of certain patients with CD are Kveim-positive, as are early and active cases of sarcoidosis. Herpes-like viral particles have been observed in lymphoid tissues from patients with CSD. Accordingly, sera from groups with these diseases were tested for E-B virus antibodies. Antibody titers comparable to those of the control group were observed in all three groups.[46–48] The suspicion was thus eliminated, and the E-B virus was spared further etiologic incriminations.

Summary and Conclusions

An elusive herpes-like (E-B) virus with an unusual biological activity was first discovered by electron microscopy in lymphoblasts derived from Burkitt's lymphoma, and is now associated with a variety of human diseases. Attempts to link this virus etiologically with these human diseases are generally based on detection of specific viral antibodies in the patient's sera and observation of viral particles, viral antigens, or viral genome in the patient's affected cells. However, the same antibodies and viral elements have been observed in patients with diverse diseases and in seemingly normal individuals; this makes a specific etiologic relationship between the virus and any of these diseases open to question. More data than ordinarily required are needed to establish an etiologic role for E-B virus in any of the diseases with which it is associated. Among these diseases, IM claims the best supporting data. However, due to the unusual nature of E-B virus and its association with other unrelated conditions, an etiologic role for this virus in IM is not yet established.

The association of E-B virus is most consistently observed in lymphoproliferative disorders. Whether infection with this virus leads to lymphoproliferation or the virus, preexisting as a latent virus, is encouraged to replicate and induce its antibodies by a lymphoproliferation process caused by another agent, is still undetermined. In the end, the unsettled issue remains: Is E-B virus the driver or the passenger in the diseases with which it is associated? Currently available data on the nature of E-B virus and on its associated diseases were critically discussed by this reviewer in the foregoing paragraphs. The reader is now asked: What is your verdict in the case of the E-B virus, guilty or not guilty?

The E-B virus is now also involved in the etiology of Kaposi's sarcoma. About 50 cell lines were established from malignant and normal tissues derived from 40 patients with this tumor. A significant percentage of cell lines (derived from patients residing

(Continued on page 128)

Quantitative Perimetry

Visual Field Assessment

WILLIAM A. PILCHARD, M.D., *Kansas City, Kansas*

During 1972, the Department of Ophthalmology at the KU Medical Center established a Perimetry Service. A Goldmann quantitative perimeter and personnel have been made available to create a service for measuring the visual fields. Quantitative perimetry is a relatively new field and represents an important adjunct to tangent screen methods of perimetry.

The visual field is not a flat two-dimensional entity, but represents a very important third characteristic which is sensitivity. This third dimension, elevation or thickness, when artistically or mentally visualized, creates the "island of vision in the sea of blindness" *(Figure 1)*. Foveal vision at fixation represents the peak of this island, while the blind spot is a very deep hole. Along the slope of this hill are levels of equal sensitivity, or isopters. When the isopters are plotted on paper, a topographic map of the island is created.

A sensitivity isopter is determined by four variables which are: size of the test target; luminance of the test target; luminance of the background; and speed of movement of the test target. These variables can be accurately controlled with the Goldmann perimeter. Therefore, each isopter can be reproducibly determined. Tangent screen examinations are difficult to standardize.

The Goldmann perimeter has a hemispheric bowl with an evenly illuminated white mat on the inner surface. The patient, with one eye occluded, places his head within the bowl against chin and forehead rests *(Figure 2)*. The eye to be tested is centered within the bowl by a telescopic device and movements of the head rest support. The background is then one-third meter equidistant from the tested eye in every meridian. By means of a pantographic mechanism and a projection device with graded grey neutral density filters, a target of desired size and brightness is then presented in the bowl and brought from nonseeing to seeing areas. The target speed is controlled by the perimetrist to minimize that vari-

A relatively new technique of examining visual fields aimed at providing accurate and reproducible reports of findings.

From the Department of Ophthalmology, University of Kansas Medical Center, Kansas City, Kansas 66103.

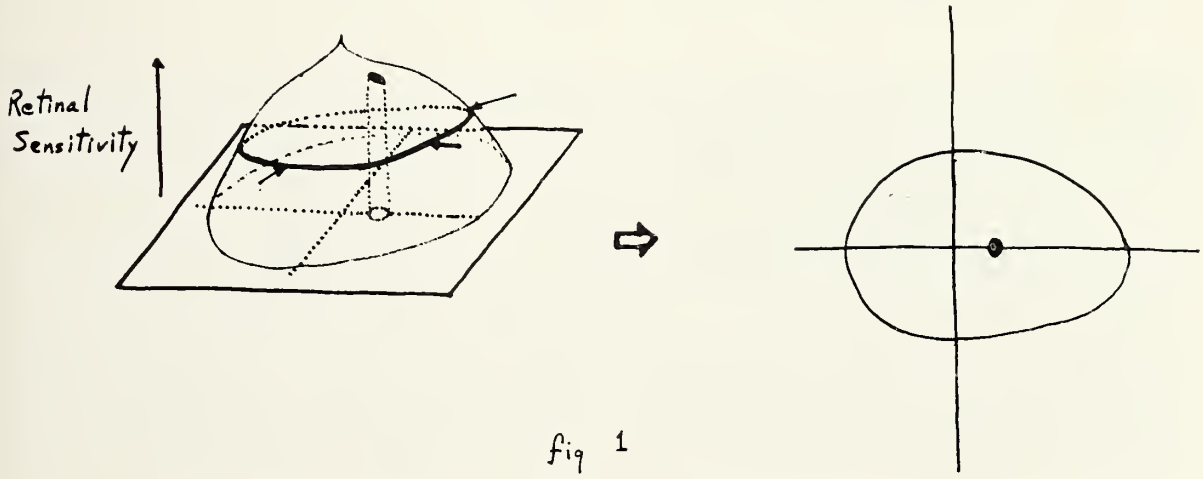

Figure 1. The "island" of vision. One sensitivity isopter is shown.

Figure 2. Patient positioned in perimeter bowl.

Figure 3. Visual field plotted by perimetrist using pantograph.

able, or the target can be turned on and off in different locations without movement (static instead of kinetic perimetry). The patient presses a buzzer when he sees the target and this signal is recorded directly onto a chart from the pantograph *(Figure 3)*. The chart is standard, and isopters are drawn according to a color code which simplifies comparison from one examination to another.

Visual fields are important to the ophthalmologist in establishing the diagnosis of open-angle glaucoma, and determining whether or not the disease is progressing on medical therapy. Progression of field loss on maximum tolerated medical therapy is an indication for surgery. Surgery is a major step and contains inherent risks, so that the ophthalmologist ideally needs the most accurate perimetry in making his decision. The precision and reproducibility make

Figure 4

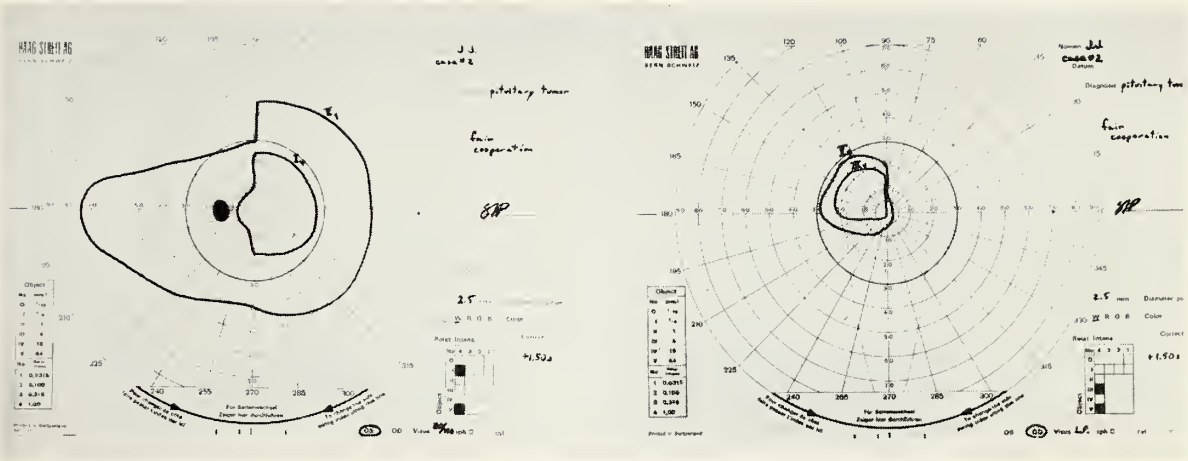

Figure 5

Goldmann perimetry of great help. Furthermore, these fields are universal standards and could be readily interpreted in any ophthalmic center in this country, Europe, or Japan.

Case One

An early visual field change in open-angle glaucoma is illustrated by this case. The applanation pressure is 42 mm Hg in the right eye, and 30 mm Hg in the left eye. The visual field of the right eye shows contraction of central isopters and a nasal step. Dense scotomatous defects are present in the inferior Bjerrum area. The left visual field is normal and is shown for comparison *(Figure 4)*.

Case Two

The patient was treated for glaucoma on the basis of "typical glaucomatous cupping" of the optic nerve heads. Vision failed progressively. Visual fields were then done and showed a bitemporal field loss *(Figure 5)*. A chromophobe adenoma was found compressing the optic chiasm. This is an example of why perimetry is vital in making the proper diagnosis. Observation of optic nerve heads alone is not sufficient in making the diagnosis of open-angle glaucoma.

Case Three

In neurologic disorders, quantitative perimetry is of especial value in lesions of the chiasmal area. Patients with an enlarged sella turcica may be followed at the neurosurgeon's option with sequential visual fields. Angiography and pneumoencephalography involve some risk to the patient while perimetry does not. When the bitemporal defect appears or progresses after several months in well controlled, reproducible circumstances, this is firm evidence of a progressive chiasmal mass lesion. This case is an example of an advanced pituitary tumor in a young individual causing dense bitemporal field loss *(Figure 6)*. After operation, the visual field and visual acuity improved remarkably *(Figure 7)*.

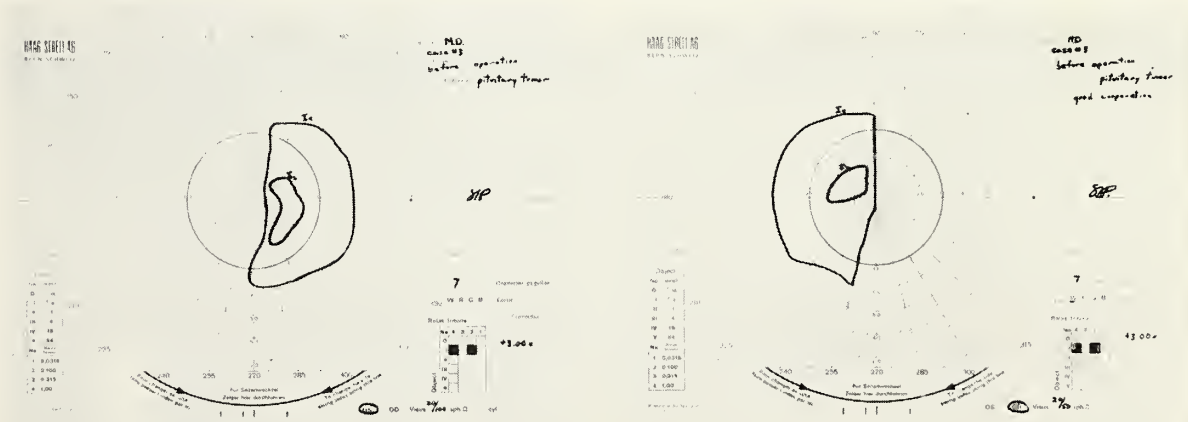

Figure 6

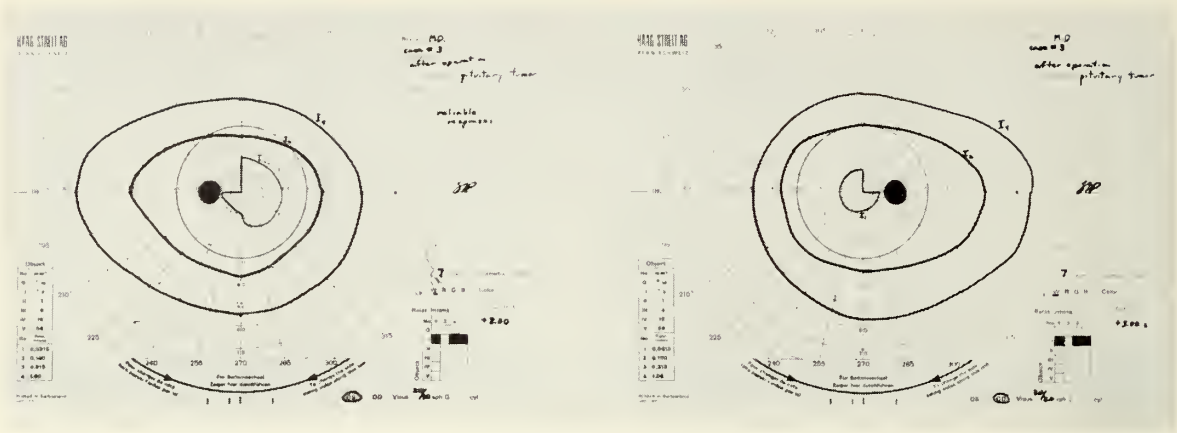

Figure 7

Summary

These cases are examples of how interesting and rewarding accurate perimetry can be. The next few years will establish a new fund of experience in improved perimetry at KUMC.

References

1. Newman, M.: Modern techniques in perimetry. *Int. Ophthal. Clin.* 7:4, 1967.
2. Harrington, D. O.: *The Visual Fields,* ed. 2. St. Louis, The C. V. Mosby Co., 1964, pp. 114-162.
3. Aulhorn, E. and Harms, H.: Early visual field defects in glaucoma. Tutzing Symposium, Basel, 1967.

25th Annual

MIDWEST CANCER CONFERENCE

For Physicians

"CONQUEST OF CANCER—THE TEAM APPROACH"

THURSDAY APRIL 5

Thursday Morning Session

9:15 a.m.—"Radiotherapy of Hodgkin's Disease" Luis Delclos, M.D.
9:45 a.m.—"Tracer Studies in the Diagnosis of Brain Tumor" Henry N. Wagner, M.D.
10:15 a.m.—"Soft Tissue Tumors" Gerald Fine, M.D.
11:00 a.m.—"Advances in Chemotherapy for Control of Malignant Diseases" Emil J. Freireich, M.D.
11:30 a.m.—Question and Answer Panel

Thursday Afternoon Session

1:15 p.m.—"Tracer Studies in Other Neoplasms" Henry N. Wagner, M.D.
1:45 p.m.—"Surgical Treatment of Carcinoma of the Thyroid" Bentley P. Colcock, M.D.
2:15 p.m.—"Diagnosis of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
3:00 p.m.—"Perfusion and the Treatment of Melanoma of the Extremities" Edward T. Krementz, M.D.
3:30 p.m.—Question and Answer Panel

FRIDAY APRIL 6

Friday Morning Session

9:15 a.m.—"Use of Cancer Chemotherapeutic Agents in Non-Neoplastic Diseases" Thomas C. Hall, M.D.
9:45 a.m.—"Treatment of Cutaneous Neoplasms" Christian D. Radcliffe, M.D.
10:15 a.m.—"Clinical Experiences with Immunotherapy of Melanoma" Edward T. Krementz, M.D.
11:00 a.m.—"Surgical Treatment of Carcinoma of the Colon" Bentley P. Colcock, M.D.
11:30 a.m.—Question and Answer Panel

Friday Afternoon Session

1:15 p.m.—"Supportive Therapy for the Intensively Treated Patient" Emil J. Freireich, M.D.
1:45 p.m.—"New Concepts in Early Detection of Cancer" Thomas C. Hall, M.D.
2:15 p.m.—"Radiotherapy of Gynecological Cancer" Luis Delclos, M.D.
3:00 p.m.—"Tumors of the Head and Neck" Gerald Fine, M.D.
3:30 p.m.—Question and Answer Panel

QUESTION AND ANSWER PANELS

Professional films shown from 8:00 a.m. to 9:00 a.m. each morning.

WICHITA, KANSAS **CENTURY II CIVIC CENTER** APRIL 5-6, 1973

The Medical and Scientific Committee of the Kansas Division of the American Cancer Society invites all physicians in the entire Midwest to attend a two-day graduate course on cancer. Free registration. 16 hours of A.A.F.P. credit.

The President's Message

If the surgeons of Kansas came up with the idea that only pink sutures should be used to close wounds, no other group of doctors would object.

Isn't the case for "pink sutures" much stronger if we all support it?

Similarly, are there any needed rules supportable by any grouping of physicians which all doctors cannot publicly endorse and work for?

Conversely, doesn't the infringement on any group of doctors hurt us all?

The Kansas Medical Society's plea is this—that each specialty group, that every hospital staff, that each area society allow all 2,000 of us to fight beside you for our patients' ultimate good.

Let us have more perfect union, and have it now!

Kenneth L. Graham MD

President

P. S. The patients' ultimate good is pronounced, "physician's rights."

Fable

Many years ago in the far-out land of Affluenza, there reigned a wise and noble Emperor surrounded by a motley crew of councilors, among them a Master of Physick, yclept Docque. He it was who was charged with the health of the Empire, a duty he discharged in good conscience with a supply of henbane, mugwort, and a family of leeches left him by his father and predecessor (known as the Docquevater and generally held in high esteem because of his custom of making castle calls and keeping no books).

Now it came to pass that on one Midweek's Day, Docque was absent from the court, being in the outer environs of the city gathering samples of soil and plant life on the Imperial Gollph Preserve, a custom he actually disliked but pursued to maintain the image of himself created in the minds of the populace by the Imperial Presse. The Emperor, who had had a thing about clothes since the day he had been conned into buying a cellophane suit from an itinerant peddler from Honge Konge, assembled his councilors and addressed them, saying, "It has come to our attention—" (note: emperors and editors refer to themselves in the plural, whereby they can take credit if things go right, or act as if it were someone else if they go wrong) "—as we were saying before we were parenthetically interrupted, it has come to our attention that Docque is in need of a new outfit. Those hand-us-downs of the Docquevater's have had it. Interimperial studies show that he rates 15th on the list of Best Dressed Medics and since there are only 12 empires, he obviously is in need of reupholstering. The Chair will now entertain your suggestions—and your suggestions will undoubtedly entertain the Chair." The Emperor imagined himself quite a card.

Thereupon, a Councilor of The Inner House rose and quoth, "Your Humble Councilors are pleased that Your Imperial Majesty has—at long last—taken time from his travels from one end of the empire to the other to notice that which has been apparent to all of us who have been slaving here in the interests of your subjects: a crisis exists in Docque's coverage."

The Emperor glanced uneasily at the Councilor, knowing full well that said Councilor had long been waiting for a propitious moment to pull the throne out from under him.

"Now, it just happens," the Councilor continued, "that I have a bolt of cloth-of-gold here which would serve admirably for his new outfit since it will cover everything."

The Emperor fingered the material dubiously. "We admit it is appealing, but it looks frightfully expensive."

"Pish and tush," replied the Councilor. "It will cost no more than maintaining that scruffy outfit he's wearing now. I promise you, in this cloth, Docque will be a different man."

"We-ull," said the Emperor, "we had something simpler in mind—neat, you know, but not gaudy. Maybe, by taking bids from suppliers, we could get a better price. After all, that's the principle that has made Affluenza affluenzal—finagle the best deal."

At this point, one of the Councilors of The Outer House (not to be confused with the Privy Council) spoke up. "Begging Your Imperial Pardon, I know a guy whose brother-in-law is in the uniform business. For cost plus 10, cash in advance, he'll give us a deal to do the whole job and outfit Docque's family too. Of course, he has only one style and Docque would have to agree to use his maintenance service and get in for all authorized check-ups."

Another Councilor took the floor. "Why don't we just supply him with socks and underwear, and anything else he needs he can get for himself. We could maybe give him a little credit toward his taxes if he squawks."

Still another rose and spoke, saying, "Since it is obvious that Docque has not shown a responsible attitude in the choice and care of his clothes in the past, I propose that he just be instructed to report to the

Imperial Supply Sergeant each morning to be issued the proper uniform and wearing instructions."

"Your Imperial Highness," interposed the Minister from the *Cracy de Bureau,* "I want you to know that even though Your Highness has expressed some discontent with us in the past, we stand ready to do anything to implement, expedite, and obfuscate this project."

"We didn't know you were in the tailoring business," said the Emperor.

"Oh no," cried the Minister, "We don't know anything about tailoring, I'm talking about administering it."

Meantime, unnoticed by the others, Docque had strolled in and was listening to the discussion while digging soil samples out of his cleats. "Now just a daggoned Imperial minute," he exclaimed. "How about letting me have a say in this? In the first place, there's nothing wrong with my clothes. Don't forget, in the time I've been wearing them, we have practically stamped out kala azar and have gone a long way toward getting the fusel oil out of the Imperial spirits. Maybe styles have changed a little, but that's a social problem, not a medical one. You guys want to dress me up in some fancy socializing duds and next you'll be telling me how and where to wear them. I'm telling you, I just may go around in nothing but my union suit."

"Take it easy, Docque," said the Emperor. "We're only doing this for you own good. Don't you want to make a good impression when you go to the Interimperial Congress of Medics, Magicians, and Wizards?"

"Haw," hawed Docque, "if my outfit is such a fright, how come so many of those guys are hanging around the backdoor hoping for my cast-offs? How come more guys are trying to get my job than yours? All I got to do is maybe turn the collar and let down the hem a bit and rearrange things so as to cover some of the bare spots."

Thus the rhetorrhagia continued for several hours until the Emperor, suffering from a deficiency of his preprandial libation, waxed wroth and quoth, "Have done with this argufying! It pleases us to appoint an Imperial Committee which shall be charged with the development of Operation Docque's Frocques. Meeting adjourned!"

And so it came to pass that there were many meetings held and much coming and going. Designers were consulted, contracts were let, consultants were hired. An addition was built on the Palace to house the operations, and several subcommittees made trips to foreign empires to study, among other things, style trends in medical clothing. Docque, meanwhile, retired to his quarters to tend his leeches and see an occasional old codger who was not involved in the preparations and, therefore, had nothing else to do.

At last the great day came when the long-awaited garments were completed. The Emperor declared a holiday, it being Monday anyway, and issued a decree that all the townspeople would assemble in the square and have the opportunity to observe Docque in his new raiment. Long before the appointed hour, the square was filled with a happy, jostling throng of citizens. The 8-piece Affluenzal High School Marching Band had finished spelling out, "No more need to hold your nose/Docque has got some brand new clothes," which took some time since they had to do it one letter at a time.

Then, as the lavish palanquin was borne into the square, the people pressed forward to look, and a hush fell over the crowd. At that moment, a Little Child, eyes shining with innocence, gazed up at his father and said in his sweet, piping voice that floated over the square, "Hey, Pop, that looks like a pile of leftovers from the Annual Imperial Thrift Sale. I can't even see Docque."

The father looked around nervously. "Shaddap," he hissed. "Though there be great truth in what you say, shaddap anyway yet. Do you want us to be thrown in Ye Imperial Pokey?" But it was too late. A murmur swept over the crowd increasing to roar as the people surged forward and hands tore at the garments, rending the beautiful red tape that bound them together. And as the last piece was stripped away, there before them lay the shapeless, faintly pulsating form that had been Docque.

"Gee, Pop," quavered the sweet, innocent voice, "I think I'm going to be sick."

"*Now* you tell me," the father replied softly.—*D.E.G.*

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THE JOURNAL

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THE HIGH COST OF MEDICAL CARE

There is no doubt but that the practice of medicine is becoming less profitable than it once was.

One problem is increased paper work associated with Medicare and Medicaid and the resultant necessity to hire extra clerical help. Another problem is the increasing number of malpractice suits.

The malpractice committee of the Kansas Medical Society considers the problem so serious that it has instituted a three-part program to combat it.

The doctors would provide information on cost cutting methods, propose legislation making malpractice suits more difficult to win and explore the possibility of forming a state-wide professional liability program to screen physicians seeking malpractice insurance.

No doubt malpractice suits are an important factor in the high cost of medical practice; from 6,000 to 10,000 suits are brought each year against the nation's 250,000 practicing physicians.

However, insurance rates don't appear to be unreasonable. According to the Kansas insurance commissioner, general practice physicians pay $44 a year for $5,000 to $15,000 of malpractice coverage and $132 a year for $100,000 to $300,000. Coverage for high-risk practices such as heart and brain surgery come higher, but fees generally are higher, too.

Unfortunately, malpractice insurance isn't the only type of coverage that contributes to the high cost of a medical practice. Abuses of such health insurance programs as Blue Cross-Blue Shield by both doctors and patients contributes to increasingly higher premiums.

Patients too often receive unnecessary treatment and stay in the hospital longer than they probably would if they were paying the bills out of their own pocket.

Some physicians lower the overhead by other schemes that may not be illegal, but which many persons consider to be "unethical."

A New York City councilman, Leon Katz, for example, charged the other day that many physicians and laboratories have an arrangement there in which the doctors receive kickbacks for ordering unnecessary, expensive tests for patients. It has cost the city more than $4 million a year in Medicaid payments, Katz said.

Some doctors do many such tests in their own offices and pocket the profit.

The result of all this is that the patient pays more for health care that isn't necessarily any better than it has been in the past.

Some changes need to be made.—*Wichita Eagle,* Jan. 16, 1973.

MOVE 'EM OUT

Nearly all hospitals in Kansas take part in Medicare. Each of them also has a Utilization Review Committee.

The committee is a relatively new function which seeks to reduce long-stay cases in hospitals. Various ailments, such as appendicitis, are given average healing times based on studies.

If the ailment duration is say five days and you and your doctor believe you shouldn't leave the hospital until after seven days, just and valid reasons must be supplied to the committee on the necessity of continued acute care. Otherwise the insurance won't pay for the extended hospitalization. You do.

It's a system that's far from perfect. It places on the committee—usually comprised of at least two physicians what have enough of their own work to do—the task of second-guessing the attending physician, second-guessing averages against human behavior.

In some cases, the review could show that while a patient's stay in the hospital is no longer medically necessary, some type of extended care is appropriate, such as in a nursing home.

The hangup in western Kansas is that many nursing homes won't participate in Medicare. So the elderly patient kicked out of the hospital and unable to pay for nursing home care finds himself or herself in a precarious position and it shouldn't be.—*Larned Daily Tiller & Toiler,* Dec. 13, 1972.

Journal on Microfilm

Microfilmed copies of current as well as all back issues of the JOURNAL are available through University Microfilm Services, a subsidiary of Xerox Corporation. The 35 mm film fits all standard viewers and provides the JOURNAL in miniature at a savings on binding and storage costs. Write for information or send orders direct to University Microfilm Services, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

Medical-Legal Page

Surgeon's Failure to Consult With Specialist

An award of $300,000 to a teen-age boy who underwent amputation of his leg as a result of negligent vascular surgery was not excessive, a California appellate court ruled. The award was handed down against a general surgeon who failed to call in a vascular surgeon for consultation.

The boy had suffered a gunshot wound in his left thigh while on a hunting trip. His father took him to a hospital, where he was examined by a general surgeon. Although the surgeon had no training in vascular surgery, he did not call in a vascular surgeon. Instead, he operated to reconnect the severed femoral artery, using a portion of the saphenous vein in a grafting procedure. No arteriogram was performed before the operation to determine whether blood clots were obstructing circulation in the femoral artery.

Circulation was not restored by the operation, and the surgeon performed a second vein graft. He then amputated the boy's leg below the knee.

After the boy returned home, other physicians noted excessive drainage from the amputation stump, granulated and dying tissue, and infection. More portions of the boy's leg were removed in further surgical procedures.

The boy brought action for malpractice against the surgeon. At the trial the surgeon called no medical witnesses. In a pretrial deposition, he attributed the bad result of surgery to clotting. At the trial, however, he testified that the failure might have been due to arterial spasm.

A vascular surgeon testified that the surgeon had not followed the standard of care for vascular surgery in the county. He said the first femoral graft had not been properly done and that restoration of arterial circulation was prevented by presurgical clotting in the artery. Failure to discover the clotting by use of an arteriogram or some other appropriate procedure was not standard practice, he said.

The jury awarded the boy $300,000. The surgeon appealed, contending there was insufficient evidence to support the verdict and judgment. The surgeon also contended that the $300,000 was excessive as a matter of law, citing other decisions in cases of amputations or disabling injuries.

The appellate court said that while amounts awarded in similar cases might be considered, in the final analysis each case must be decided upon its own peculiar facts and circumstances. The boy, who had a substantial life expectancy, lost his lower leg and had to undergo several painful surgical procedures. Therefore, the court did not feel that the amount of the verdict was so disproportionate to the injuries suffered as to "shock the conscience."

The surgeon also contended that the trial court had erred in refusing to give a "present cash value" instruction to the jury. The appellate court held that the trial court was correct in refusing such instruction for lack of evidence to support a finding of the present cash value of the boy's future earning capacity. The court said it would have been sheer speculation for the jury to determine a present sum of money which, together with interest, would pay the boy the equivalent of his loss of earning capacity.

The court said there were present cash value tables that might have assisted the jury but the proposed instruction made no reference to them. The jury was instructed on the boy's life expectancy and told that it should consider the extent to which it was reasonably certain that his power to earn money would be impaired.

Affirming the judgment of the trial court, the appellate court held there was sufficient evidence to support the verdict and judgment.—*Wilson v. Gilbert,* 102 Cal.Rptr. 31 (Cal.Ct. of App., May 16, 1972)

Damages Awarded for Negligence In Taking Pap Smear

A patient who suffered invasive cancer, allegedly as a result of delay in diagnosis because of inadequacy of a Pap smear, was awarded $160,000 by a California jury.

The patient, a 51-year-old woman, entered a clinic with complaints of pain in the lower right abdomen. A physician took a Pap smear and sent it to a laboratory for analysis. The laboratory reported negative findings.

The patient was later found to have invasive cancer. After treatment with cobalt, she had a 40 per cent chance of surviving for five years.

In an action for malpractice against the laboratory and the clinic, the patient contended that the physician had been negligent in taking an inadequate specimen and in not taking a second one. She further contended that the laboratory was negligent in not

(Continued on page 128)

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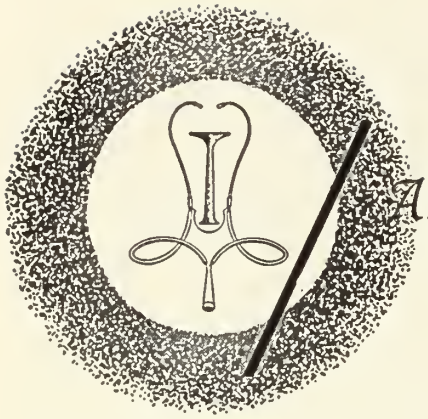

Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.*

MARCH

Mar. 29-31 National Conference on Urologic Cancer, Shoreham Hotel, Washington, D. C. Write: American Cancer Society, 219 E. 42nd, New York 10017.

APRIL

Apr. 1-4 American College of Surgeons Annual Spring Meeting, Americana and Hilton Hotels, New York. Write: S. Frank Arado, 55 E. Erie, Chicago 60611.

Apr. 9-12 American Academy of Pediatrics Annual Spring Session, Sheraton Boston Hotel, Boston. Write: AAP Public Information, 1801 Hinman Avenue, Evanston, Illinois 60204.

POSTGRADUATE COURSES

University of Kansas:

Mar. 12-14	*Pediatrics*
Mar. 26-28	*Surgery*
Apr. 2-4	*Ophthalmology*
Apr. 13	*Infectious Diseases*
Apr. 23-25	*Anesthesiology*
May 10-11	*Inhalation Therapy*
May 14-15	*Electrocardiography*

For further information, write the Department of Postgraduate Medical Education, K.U.M.C., Kansas City, Kansas 66103.

University of Chicago:

Apr. 11	*Advances in Neurological Diagnosis and Treatment*
May 9	*The Acutely Injured Patient*

For details, write the University of Chicago, Frontiers of Medicine, Room 404, Culver Hall, Chicago 60637.

University of Colorado:

Mar. 5-10	*(Repeat of January GP Review)*
Apr. 9-11	*Treatment in the Emergency Department*
Apr. 12-14	*Clinical Dermatology*
May 31-June 1	*Battered Child Symposium*
June 11-16	*General Practice Review*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver 80220.

University of Illinois:

Mar. 5-10	*Laryngology and Bronchoesophagology*
Mar. 26-29	*Neurotology*

For details, write the University of Illinois Medical Center, Department of Otolaryngology, 1855 W. Taylor, Chicago 60680.

University of Miami:

Mar. 19-22	*Pediatric Cardiology*
May 29-31	*Clinical Electrophysiology*

For details, write the University of Miami School of Medicine, Division of Continuing Education, PO Box 875, Miami 33152.

University of Oklahoma:

May 18-19	*Medical Therapeutics*

For details, write the Office of Continuing Medical Education for Physicians, University of Oklahoma College of Medicine, 800 NE 13th St., Oklahoma City, Oklahoma 73104.

University of Texas:

Mar. 15-16	*Problems of Office Pediatrics*

For details, write the University of Texas Medical Branch, Galveston 77550.

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Manuscript Preparation

Manuscripts must be typewritten, double spaced, leaving wide margins. Submit the original, plus one copy if possible.

Titles should be short, specific, and amenable to indexing. A subtitle is frequently used to keep the main title short.

Summary: All manuscripts should include a short abstract which is a factual (not descriptive) summary of the work.

Author Responsibility: The author is responsible for all statements made in his work, including changes made by the copy editor. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication. Publication elsewhere will be subsequently authorized at the discretion of the Editor.

Galley Proof: To make extensive changes in the article after the text has been set in type may require an additional cost which exceeds the original. The galley proof is for correction of ERRORS, and a rewriting of the article should be done on the original copy BEFORE it is submitted for publication.

Drugs should be called by their generic names; the trade names can be added in parentheses if they are considered important. All *units of measure* must be given in the metric system.

References

Bibliographic references should not exceed 20 in number, documenting key publications. Personal communications and unpublished data should not be included. References should be arranged according to the order of citation, and not alphabetically. All references must be numbered consecutively and all must be cited in the text. Use the style of the AMA publications, giving: name of author, title of article, name of periodical, volume, pages, year.

Illustrations

All material which cannot be set in type, such as photographs, line drawings, graphs, charts, tracings (for preparation of tables, see below) must be mounted on white cardboard. All must be identified on the back as to figure number, author's name, and an arrow indicating top. Legends should be typed double spaced on a separate sheet of paper, limited to a maximum of 30 words.

Drawings and graphs should be done professionally in India ink on illustration board or high grade white drawing paper.

Photographic material should be submitted in duplicate as high-contrast, glossy prints. Color illustrations will be accepted for publication only if the author assumes the cost.

THE JOURNAL will assume the cost of B/W engravings and cuts up to $35 (or 5 cuts). Engraving cost for illustrations in excess of $35 will be billed to the author.

Tables

Because tables are set by hand, their cost is comparable to illustrations. A reasonable number of tables are allowed without cost to the author.

Tables should be self-explanatory and should supplement, not duplicate, the text. Since the purpose of a table is to compare or classify related items, the data must be logically and clearly organized. The relationship and comparison are established by the correct choice of column heads (captions of vertical columns) and stubs (left entries in horizontal listings).

Each table should be typed double spaced, including all headings, on separate sheets of lettersize paper. Oversize paper should not be used. Instead, repeat heads and stubs on a second sheet for tables requiring extra width. Number tables consecutively. Each table must have a title.

Reprints

A reprint order form with a table covering cost will be sent with the galley proof to each contributor. Since the JOURNAL has no way to provide for reprints, they must be ordered by the author and purchased directly from the printer.

NOMINATING COMMITTEE

The Nominating Committee submits the following list of nominations for the elective offices of the Kansas Medical Society. Wherever more than one nomination appears, these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

John N. Blank, M.D., Hutchinson. Born in 1907. Graduated from the University of Kansas School of Medicine in 1938. Is serving as president of the Kansas State Board of Health. Is past president of the Kansas Academy of Family Practice.

First Vice-President

John W. Travis, M.D., Topeka. Born in 1929. Graduated from the Northwestern University School of Medicine in 1955.

Second Vice-President

Ernie J. Chaney, M.D., Belleville. Born in 1927. Graduated from the University of Kansas School of Medicine in 1956.

Richard M. Glover, M.D., Newton. Born in 1921. Graduated from the University of Kansas School of Medicine in 1953. Is now serving as Councilor.

Alex Scott, M.D., Junction City. Born in 1923. Graduated from the University of Wisconsin School of Medicine in 1948. Has served as Councilor.

G. Rex Stone, M.D., Manhattan. Born in 1929. Graduated from the University of Kansas School of Medicine in 1954.

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Has served as Constitutional Secretary.

Constitutional Secretary

Phillip A. Godwin, M.D., Lawrence. Born in 1928. Graduated from the University of Kansas School of Medicine in 1955. Is now serving as Constitutional Secretary.

Treasurer

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Is now serving as Treasurer.

AMA Delegate

Clair C. Conard, M.D., Dodge City. Born in 1927. Graduated from the University of Kansas School of Medicine in 1955. Is now Speaker of the House of Delegates.

Ralph Hale, M.D., Wichita. Born in 1918. Graduated from the University of Kansas School of Medicine in 1946.

James A. McClure, M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1944. Has served as President.

AMA Alternate

John D. Huff, M.D., Kansas City. Born in 1921. Graduated from the University of Kansas School of Medicine in 1952. Is now serving as Councilor.

Lew W. Purinton, M.D., Wichita. Born in 1923. Graduated from the University of Kansas School of Medicine in 1948.

SUPPORT KaMPAC

1973

Woman's Auxiliary

. . . *Dee Cauble, Kansas' Mrs. IHA*

Some people go through life being the spark plugs that keep the wheels turning, and others just seem to plug along. On March 14, about the time you get this JOURNAL, one of our Kansas auxilians will be doing her thing again with the "Walk for Mankind" sponsored by Project Concern.

Now our Kansas Auxiliary has lots of members . . . over 1,100 in fact. Like other organizations, it has members who do lots, some who do little, and some sort of in the middle. It would become apparent to anyone who watched Dee Cauble (Mrs. Wilbur G., of Wichita) for even five minutes that she certainly isn't one of the ones who do little, or even a medium amount of work for the Auxiliary.

What's Dee's "thing"? It's International Health, with Project Concern one of her favorite agencies. Since the start of the International Health Activities committee back in the early '60s, Dee has been its most faithful friend. She took the chairmanship approximately two and one-half years after the committee started. At that time the program was going, and doing fairly well for a new one, but it wasn't the "going concern" that it's been almost from the time Dee touched it with her magic.

What is Dee's magic? Mostly hard work and an ability to find other people who will help with what she wants done. She doesn't look like the dynamo that she is. She has a soft sell, but when she gets through telling you about her IHA ideas, what her people have done, and what they hope to do, almost everyone wants to help her in some way.

"Well, what *has* she done?" you say. "Get on with it, girl. Tell us!"

Our answer would be "practically everything." Maybe Annie'd better modify that with a statement "practically anything that's legal." Because, while Dee isn't above "begging and borrowing," she certainly isn't the type to steal, or to do anything else below board.

For a brief run-down of the last eight or ten years of Dee's chairmanship, let me give you figures on just a few of the IHA projects. First, the history. In 1964, after the program had been started a year or two, permission was given us to send supplies and sample drugs to Project Concern in Hong Kong. Practically every Kansas doctor cleaned out his office closets, giving us medical equipment and leftover sample drugs. Project Concern was our choice at the time because they needed the supplies desperately and also because the Kansas Jaycees would do the shipping for us, which was our biggest problem. Now the "99's," a group of women pilots, fly our supplies to almost any relief agency in the United States that we choose to send them. The agencies ship the materials where they are most needed.

By 1969, things were really rolling. It's impossible to say how many pounds of supplies and drugs have been sent to the various agencies, but we do know that more than 50,000 pounds were sent in 1967-68, and much before that time. In 1970, 340 barrels were sent to World Medical Relief, Project Concern, Direct Medical Relief, and others. Last year, 23,500 pounds of supplies were sent to agencies. In these were 9,500 articles made by Dee's coworkers.

"Figures, figures," one might say. . . . "And what do you mean by 'articles'?" But wait. The breakdown would show things like this: 1,796 hospital gowns made from men's shirts, 147 layettes, 440 pairs of knitted slippers, 421 hygiene kits, 23,000 rolled bandages, 214 comforters, 75 baby blankets, 1,358 children's dresses, 57 pillows stuffed with soft nylon cleaning bags, and even 400 ROTC overcoats sent to the Indians of Bisti, New Mexico. The list is endless.

Does everything go overseas? No, indeed. Some of it goes to the Appalachian region, to New Mexico, to clinics in Tijuana, and other places of need here in our own hemisphere.

The "Walk for Mankind" netted $50,000 in 1969. In 1971, 8,000 walkers brought in $126,000. In 1972, $120,000 was earned by 13,000 walkers. Both sexes and almost every age group have been represented. Several six-year-olds completed the 20-mile walk last year. Two people in wheel chairs went, one propelling his chair 11 miles.

More than 500 non-profit groups were involved. These groups receive 20 per cent of the amount their own walkers earn. Another 10 per cent is held back for use in the community, mostly for youth projects. "This makes for real community involvement," Dee says. Three Wichita youth groups worked in Appalachia helping build and paint buildings and clear land last summer. One group went to Bisti, New Mexico, and one worked locally.

"I like to think we make use of things that otherwise would be thrown away," Dee says. Her committee encourages women in rest homes, church circles, and other groups to make the articles they ship to the needy areas. They even braid old nylon stockings

(Continued on page 128)

The D. C. Line

The term, Health Maintenance Organization (HMO) has become familiar to many since President Nixon, in his 1971 State of the Union message, first requested legislation to assist in its formation. The 92nd Congress did not pass the requested legislation. Although the Senate did pass a bill, the House bill (basically the bill that I authored and introduced in November 1971) passed out of subcommittee only and was not considered by the full committee or the House of Representatives.

In this column, I would like to discuss the political prospect for passage of an HMO bill in 1973, and some of the greatly differing provisions of the House and Senate bills.

In short, the prospects for an HMO law in 1973 are good to excellent. There are several reasons. First, there is money in the Administration's proposed budget for fiscal year 1974. The amount is $68 million, an amount quite in line with the more modest House proposal. Secondly, without specific legislation, the Department of Health, Education, and Welfare has proceeded to fund some 110 grants for feasibility studies, planning, and development of HMOs. This has been done under broad legislative language providing for the establishment of experimental health care delivery systems. It is generally felt in Congress that this program, in the absence of specific authorizing legislation, exceeds the intent of any section of the present Public Health Service Act. But be this as it may, a federal HMO program, authorized or unauthorized, wise or unwise, is underway. And the health committees generally hold that the features of any such program should not be discretionary, but should be controlled by specific legislative provisions.

Thirdly, there has been introduced into this new Congress the specific House bill which we passed out of subcommittee without dissent. Our Health Committee consists of the same six Democrats who considered the bill in 1972, and the three senior (of five) subcommittee Republicans who have returned. It is, therefore, reasonable to expect that subcommittee consideration may well be limited to a day in March, and that the Roy-Rogers bill will be ready for early consideration by the Commerce Committee and House.

My information on the Senate bill is less certain, but it is expected that there will be early Senate action which will result in the passage of essentially the same bill which passed the Senate in 1972.

And here is the rub. The House and Senate bills differ markedly. This will make the conference to iron out the differences in the two bills very difficult. The two bills reflect differences in philosophy and great differences in extent of federal assistance. Furthermore, I am fully aware of the commitment of our House Health Committee members to our bill. It was laboriously pounded out over a period of nearly five months. There is every reason to assume that the members of Senator Kennedy's committee have a similar commitment to their bill, which was overwhelmingly passed by the Senate. If this year's vote is similar, the Senate conferees can well state that they must hold fast to the will of the Senate.

The best illustration of the differences in the two bills is the price tag: The Senate bill authorizes expenditure of 5.2 *billion* dollars over three years, while the House bill authorizes the expenditure of 300 *million* dollars, about one-seventeenth as much. The difference in money comes about primarily because the 1972 Senate passed a bill which would subsidize enrollment fees for recipients of HMO-provided care. The basic philosophy of the senators supporting the bill is that such subsidization of enrollment fees would, first, make the establishment of HMOs likely in presently underserved areas and, secondly, provide health care for those who are not presently receiving care because of inability to pay. The House committee's (and my) opposition to this subsidization includes the fact that such subsidization of recipients will favor HMO services versus the presently existing delivery system, and also make the evaluation of the efficiency of HMOs in a truly competitive market impossible. We feel HMOs must be permitted to fail if they cannot compete. Additionally, such subsidization of enrollment fees make geographic location (whether or not one lives in the geographic area served by a federally assisted HMO) the sole determining factor whether or not an individual receives medical care partly or entirely at government expense.

The Senate bill requires prepaid group practice. My bill makes it possible for a Foundation of separately practicing solo or small-group physicians to provide the physicians' services of an HMO. This alone makes possible a fee-for-service payment mechanism. The Association of Medical Foundations has said repeatedly that this provision is essential to the preservation of private practice.

A bill passed by the 1972 Senate—which I am presuming will be the 1973 Senate bill—provides for a Quality Control Agency. The House bill requires only that the HMO have a quality control program satisfactory to HEW. The mechanism is that of HEW watching the HMO watch itself. The Professional Standards Review Organization (of 1972 Senate origin and now law) should make both provisions obsolete.

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Low Back Pain

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References

1. Naylor, A.: The biochemical changes in the human intervertebral disc in degeneration and nuclear prolapse. *Orthop. Clin. North Am.* 2:343, 1971.

2. Brown, M.: The pathophysiology of disc disease. *Ibid.* 2:359, 1971.

3. Bianco, A.: Low back pain and sciatica: Diagnosis and indications for treatment. *J. Bone Joint Surg.* 50-A:170, 1968.

4. Williams, P. C.: Conservative management of lesions of the lumbosacral spine, *Amer. Acad. Orthop. Surg.* 10:90, 1953.

5. Hoover, N.: Indications for fusion at time of removal of intervertebral disc. *J. Bone Joint Surg.* 50-A:189, 1968.

6. Uihlein, A.; Kenefick, T. P. and Holman, C. B.: Neurologic changes, surgical treatment and postoperative evaluation in lumbosacral disc protrusion. *J. Bone Joint Surg.* 50-A:182, 1968.

7. Jacobs, Rae R.; Saunders, E. A. and Sabotelle, P. E.: Posterolateral spine fusion with and without nerve root decompression: A primary procedure for low back pain. *Southern Med. J.* (in press).

Medical-Legal Page

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reporting to the physician that the specimen was inadequate and in not rejecting it instead of just reporting it negative. She said she had cancer of the cervix when the Pap smear was done and that a hysterectomy could have stopped the spread of cancer if it had been discovered.

The laboratory and the clinic said that acceptable standards of practice had been followed. The physician said the smear was properly taken but that the test was not 100 per cent accurate. The jury brought in a unanimous verdict of $160,000 against the clinic only. The clinic's motion for a new trial was denied. —*Cornell v. Clinical Laboratories* (Cal.Super.Ct., Los Angeles Co., Docket No. NCC 3792, June 29, 1971)

The D. C. Line

(Continued from page 127)

Finally, the House bill limits federal assistance to 150 HMOs and requires ongoing and final evaluations of this method of delivering medical care. The Senate bill has no such number limitation, and the authorization levels are compatible with President Nixon's stated goal of making HMO services available to 90 per cent of the population by 1980.

The above facts and conjectures set the stage for 1973 Health Maintenance Organization legislation. Time alone will affirm or deny these judgments.—*W.R.R.*

Educational Approach

(Continued from page 71)

Conclusion

The instructional design model described above will produce high quality instruction. However, this instruction must be validated by presenting it to target learners. The instruction may not work to the complete satisfaction of the instructor the first time; 100 per cent satisfaction cannot be guaranteed. What can be assured, at least, is that if the instruction is poor, the instructor will know it. This fact often escapes the medical professor whose instruction is less carefully prepared and less student-centered than required by the approach herein presented. Beyond this realization, this approach to medical instruction has inherent provision for revision, which will guide the concerned medical professor to appropriate remedies intended to improve the quality of the medical education.

Woman's Auxiliary

(Continued from page 126)

into little dolls or horses, or knit them into warm slippers, and they crochet plastic bread wrappers into exercise balls or sleeping mats.

"Be sure to mention all the wonderful help we have," Dee says. "Oh, it's great to work with people!"

People who work with Dee would say it's great to work with her. We know it's great to have her on our Auxiliary team. Bouquets to you, Dee, our Kansas Medical Auxiliary Mrs. IHA.

Auxiliary Annie

The Mystery Virus

(Continued from page 114)

in Uganda and Zaire) so far tested by electron microscopy revealed herpes-like particles. This is another significant finding but, as with other diseases reviewed above, much more data are needed to establish an etiologic role. Also reported was the clustering of five cases of Hodgkin's disease in a small rural township in Ohio. Space-time as well as association-between-cases clusterings were clearly observed.

References

1. Joncas, J. H.: Clinical significance of the EB Herpesvirus infection in man. *Progr. Med. Virol.* 14:220-240, 1972.

2. Smith, R. T. and Bausher, J. C.: Epstein-Barr virus infection in relation to infectious mononucleosis and Burkitt's lymphoma. *Ann. Rev. Med.* 23:39-56, 1972.

The remainder of references may be obtained from the author.

THE Journal OF THE Kansas Medical Society

APRIL
1973

VOL. LXXIV
NO. IV

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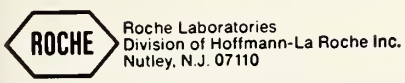

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Volume LXXIV, Number 4—April, 1973

The JOURNAL of the KANSAS MEDICAL SOCIETY

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Scientific ARTICLES

Cancer Prognosis

Staging in Pulmonary Carcinoma

R. L. FRAZIER, M.D. *and* **W. R. JEWELL, M.D.,*** *Kansas City, Kansas*

DESPITE THE NEAR exponential increase in medical technology since the turn of the century, deaths due to cancer have jumped from 8th place in 1900 to the second leading cause in 1968. This dramatic rise has largely been attributable to lung cancer which, as illustrated in *Figure 1,* shows the 1972 death rate to be 18 times as high for males and 6 times as high for females as it was 40 years ago. Figures for 1972 estimate that lung cancer will lead all other specific sites as the cause of death and will kill nearly 190 Americans per day, or almost twice as many deaths as cancer of the large intestine. Lung cancer continues, as in the past five years, to be the leading site of cancer in all males and has risen from 5th to 4th as the leading site in females. Kansas ranks 35th in lung cancer deaths, while Missouri ranks 3rd. In 1972, 650 Kansans will succumb to lung cancer, while 750 new cases will be diagnosed.

Probably the most distressing feature concerning pulmonary carcinomas is the fact that the five-year survival rate of less than 10 per cent has not improved over the past four decades. This poor record stems from the invasiveness and unresectability of most lung cancer when first diagnosed, and has led Frost[2] to term pulmonary carcinoma as "late cancer." The most intuitive answer would seem to be to screen the general population to assure early detection, much as has been done with cervical cancer. While the advanced Stage IV cancer of the cervix has a five-year survival rate of less than 10 per cent, the disease itself has been nearly eliminated, thanks to the widespread use of routine Papanicolaou smears.

The lung cancer experience at KUMC is evaluated by the clinicoanatomical staging procedure proposed by Feinstein. It seems to offer a more accurate prognostic tool than either cell type or clinical stage of disease taken alone.

One prospective study[3] employed the use of periodic cytologic examinations of the sputum, but was able to claim only a 17 per cent survival rate 32 months after detection. Several other prospective studies of pulmonary cancer have been undertaken, including the Philadelphia Pulmonary Neoplasm Project,[4] which involved 6,136 male volunteers over the age of 45 who were followed over a ten-year period and screened every six months with 70 mm photofluorograms of the chest, as well as by questionnaires. A total of 121 new cases of lung cancer were detected. The five-year survival rate of these 121 men was 8 per cent.

Until better techniques to establish an early diagnosis are found or more effective treatment modalities are developed, the practicing physician must deal with the problem. Although the overall chance of survival is small, it appears that certain patients with biologically favorable tumors can be cured. It

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is important that these more favorable patients be identified, so that aggressive and often curative management can be undertaken. This paper evaluates a staging technique which appears capable of selecting favorable patients. The system is based on the original observation by Feinstein,[5–7] namely that by combining anatomic distribution of disease with the patient's reaction to the tumor manifested by symptoms, a very predictive staging of tumor can be obtained. This report examines the validity of the Feinstein staging system and compares his results with those obtained from a group of lung cancer patients at the Kansas University Medical Center.

Methods and Materials

System of Staging

Feinstein proposes that the duration and character of the symptoms offer a valuable index as to the chronologic and functional features of lung cancer. Feinstein's definition of symptomatic groups is shown in *Table I.* He hypothesizes that a cancer patient without symptoms should be expected to have a slow-growing tumor, since it has been present for an unknown length of time and might have remained silent if accidental detection had not occurred. Similarly, a patient who presents with long primary symptoms must have a lesion with slow rate of growth, since systemic or metastatic symptoms have not occurred. However, the presence of short primary symptoms could mean a rapid-growing tumor, or one that might have grown slowly and only recently expanded to the point of producing symptoms.

TABLE I

FEINSTEIN'S DEFINITION OF SYMPTOMATIC GROUPS IN LUNG CANCER[6]

Symptomatic Group	*Characteristics*
Asymptomatic	No symptoms attributable to cancer.
Long Primary	Primary symptoms only;* one such symptom present for at least 6 months; no systemic or metastatic symptoms.
Short Primary	Primary symptoms only; none present for as long as 6 months, no systemic or metastatic symptoms.
Systemic	Systemic† but no metastatic symptoms; with or without primary symptoms.
Metastatic	Metastatic symptoms;‡ with or without primary or systemic symptoms.

* Examples are hemoptysis, dyspnea, and fever, chills, and sweats.

† Examples are anorexia, weight loss, and fatigue.

‡ Examples are hoarseness, dysphagia, and neurological manifestations.

Feinstein combined his symptomatic groups with the following anatomical classes:

I. Localized—no radiologic or microscopic evidence of tumor spread beyond the primary site.

II. Regional—involvement of mediastinal or hilar lymph nodes, but no involvement of pleura, ribs, chest wall, parathoracic nodes, nonpulmonary mediastinal organs, or distant structures beyond the thorax.

III. Distant—involvement beyond the confines of Class II.

His combined system of four clinicoanatomical stages is shown in *Table II.*

Population

From January 1, 1961 to December 31, 1965, 607 cases of primary lung cancer were recorded in the Tumor Registry at the Kansas University Medical Center. In order to duplicate Feinstein's findings, his criteria for patient selection were followed, excluding the following groups of patients from the study: 1) 82 patients had no tissue diagnosis although radiographic or cytologic evidence of lung cancer was present; 2) In 32 patients, with unsuspected disease found at postmortem examination, a diagnosis was not made during life, but evidence was found at autopsy; 3) 118 patients were first diagnosed elsewhere and referred to KUMC for initial or further treatment; 4) 30 patients died during their five-year followup from causes other than lung cancer. The remaining 345 patients had a histologic diagnosis of primary lung cancer made during life at KUMC and were followed for a minimum of five years.

As Feinstein suggested, the zero time, or point from which survival was calculated, was taken to be the date of the first therapeutic procedure whether it was thoracotomy, irradiation, or the use of a

TABLE II

FEINSTEIN'S FOUR CLINICOANATOMICAL STAGES WITH PROGNOSTIC GRADIENT FROM A TO D[6]

Clinical (Symptomatic) Stage	*Anatomical Stage* I LOCALIZED	II REGIONAL	III DISTANT
I (Asymptomatic—long primary)	A	B	D
II (Short primary—systemic)	B	C	D
III (Metastatic)	D	D	D

TABLE III

AGE DISTRIBUTION OF 345 CASES OF LUNG CANCER

Age	*No. of Cases*
30-39	5
40-49	36
50-59	122
60-69	135
70-79	43
80-89	4

chemotherapy agent. In those patients in whom no therapy was accomplished, the zero time was chosen as the time of the physician's or the patient's decision against treatment, or the date of diagnosis when the patient expired before treatment could be initiated.

TABLE IV

HISTOLOGIC CELL TYPE OF 345 CASES OF LUNG CANCER

	Feinstein's Class				
Cell Type	A	B	C	D	TOTAL
Squamous Cell	13	40	27	70	150
Adenocarcinoma (Mucin, papillary)	7	8	8	25	48
Undifferentiated Carcinoma (Large cell, small or oat cell, anaplastic, etc.)	3	22	35	81	141
Alveolar Cell	2	—	—	3	5
Fibrosarcoma	—	—	—	1	1

TABLE V

YEARLY SURVIVAL RATE IN LUNG CANCER

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*(KUMC) 5 yrs.*	*(Feinstein [7]) 5 yrs.*
A	24/25 (96%)	19/25 (76%)	18/25 (72%)	18/25 (72%)	17/25 (68%)	17/71 (24%)
B	35/71 (49%)	27/71 (38%)	22/71 (31%)	18/71 (25%)	17/71 (24%)	21/149 (14%)
C	19/69 (28%)	8/69 (12%)	8/69 (12%)	7/69 (10%)	7/69 (10%)	5/100 (5%)
D	20/180 (11%)	5/180 (3%)	2/180 (1.1%)	1/180 (0.6%)	1/180 (0.6%)	2/358 (0.6%)
Total	98/345 (28%)	59/345 (17%)	50/345 (14%)	44/345 (13%)	42/345 (12%)	45/678 (7%)

Initial information on the 607 cases was provided by the Tumor Registry at KUMC and displayed by the Medical Center Computer Service, which included patient's hospital number, admission date, age, sex, diagnosis date, treatment description, date of last followup, and the condition of patient and tumor at the last followup. The medical record of each patient was then examined and specific data such as histology type, symptoms, anatomical staging, details of treatment, and comorbidity or coexisting pathology were obtained. On the basis of the accumulated information, each case was placed into Feinstein's anatomical Class I-III and his symptomatic Class I-III and, finally, the patient was assigned a letter designation of A-D according to Feinstein's staging system.

The Chi-Square test was used for all data analysis.

Results

Included in the 345 cases at the KUMC were 308 males (89%) and 37 females (11%). Of the Caucasian patients studied, 11.7 per cent were female while 15 per cent of the Negro population were fe-

TABLE VI

YEARLY SURVIVAL RATES IN LUNG CANCER BY SEX

Sex	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
Male	81/308 (26%)	48/308 (16%)	43/308 (14%)	37/308 (12%)	36/308 (12%)
Female	17/37 (46%)	11/37 (30%)	7/37 (19%)	7/37 (19%)	6/37 (16%)

TABLE VII

YEARLY SURVIVAL RATES IN LUNG CANCER BY AGE

Age	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
30-39	1/5 (20%)	0/5 —	0/5 —	0/5 —	0/5 —
40-49	8/36 (22%)	4/36 (11%)	3/36 (8%)	3/36 (8%)	3/36 (8%)
50-59	38/122 (31%)	27/122 (22%)	21/122 (17%)	19/122 (16%)	18/122 (15%)
60-69	41/135 (30%)	24/135 (18%)	23/135 (17%)	19/135 (14%)	18/135 (13%)
70-79	9/43 (21%)	4/43 (9%)	4/43 (9%)	4/43 (9%)	3/43 (7%)
80-89	1/4 (25%)	0/4 —	0/4 —	0/4 —	0/4 —

TABLE VIII

YEARLY SURVIVAL RATES IN LUNG CANCER BY HISTOLOGIC CELL TYPE

Cell Type	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
Squamous cell carcinoma	50/150	34/150	30/150	27/150	27/150
	(33%)	(23%)	(20%)	(18%)	(18%)
Adenocarcinoma	21/48	12/48	9/48	8/48	7/48
	(44%)	(25%)	(19%)	(17%)	(15%)
Undifferentiated carcinoma	25/141	11/141	9/141	7/141	6/141
	(18%)	(8%)	(6%)	(5%)	(4%)
Alveolar cell carcinoma	2/5	2/5	2/5	2/5	2/5
	(40%)	(40%)	(40%)	(40%)	(40%)

male, not a statistically significant difference ($P > 0.5$). The age distribution of the study group is shown in *Table III*.

The histologic diagnoses of the 345 cases are shown in *Table IV* along with the number of cell types in each Feinstein class. The overall five-year survival rate in our 345 cases was 12 per cent, while Feinstein found 7 per cent survival among his 678 patients.[2, 7] *Table V* shows the yearly survival rate for each Feinstein class along with Feinstein's five-year figures.

Since the 345 patients at KUMC were studied according to sex, age and histologic cell type, the yearly survival figure for these distributions are shown in *Tables VI, VII and VIII*. The overall five-year survival rate for males (12%) and females (16%) was essentially the same ($P > 0.3$).

Of the 345 patients in the Kansas University study, 171 underwent surgery and 120 had definitive resection of their lesion. Feinstein claimed a 25 per cent five-year survival rate for patients undergoing a simple resection (lobectomy) and a similar 21 per cent for radical resection (pneumonectomy), while each of his four clinicoanatomical stages revealed essentially the same survival for the two procedures. However, in our series *(Table IX)*, 43 per cent of the 65 patients who had a lobectomy were alive after five years, while only 24 per cent of the 55 individuals who underwent pneumonectomy survived, an obvious significant difference ($X^2 = 5.02$ $P < 0.025$). Perhaps the conclusion can be made that the pneumonectomized patient did not survive as long due to the multilobular involvement by the tumor. Even more striking is the 74 to 75 per cent survival rate for Class A patients who experienced either simple or radical surgery, although the number of cases is admittedly small. *Table X* shows the remainder of the patients who underwent thoracotomy without resection, and those who had no surgery. Of interest is the fact that every patient who did not undergo thoracotomy was dead by three years after diagnosis, and the one survivor, who had thoracotomy with biopsy only, was a 56-year-old white male who had squamous cell carcinoma, left upper lobe atelectasis, left hilar lymph adenopathy, and who survived 6 years and 3 months after CO^{60} therapy.

It is of interest that older patients seemed to fare better with this disease than younger ones. *Table XI* shows that ages 50-70 had a better five-year survival rate than the < 50 group. To further support this contention, comparison of Table XI with Table

TABLE IX

YEARLY SURVIVAL RATES IN LUNG CANCER, SIMPLE VERSUS RADICAL SURGERY

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
			Lobectomy		
A	18/19	15/19	14/19	14/19	14/19
	(95%)	(79%)	(74%)	(74%)	(74%)
B	16/26	14/26	12/26	11/26	10/26
	(62%)	(54%)	(46%)	(42%)	(38%)
C	5/10	3/10	3/10	3/10	3/10
	(50%)	(30%)	(30%)	(30%)	(30%)
D	3/10	1/10	1/10	1/10	1/10
	(30%)	(10%)	(10%)	(10%)	(10%)
Total	42/65	33/65	30/65	29/65	28/65
	(65%)	(51%)	(46%)	(45%)	(43%)
			Pneumonectomy		
Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	4/4	4/4	4/4	4/4	3/4
	(100%)	(100%)	(100%)	(100%)	(75%)
B	16/22	12/22	10/22	7/22	7/22
	(73%)	(55%)	(46%)	(32%)	(32%)
C	6/21	4/21	4/21	3/21	3/21
	(29%)	(19%)	(19%)	(14%)	(14%)
D	3/8	1/8	0/8	0/8	0/8
	(38%)	(13%)	—	—	—
Total	29/55	21/55	18/55	14/55	13/55
	(53%)	(38%)	(33%)	(25%)	(24%)

TABLE X

YEARLY SURVIVAL RATES OF LUNG CANCER, THORACOTOMY WITH BIOPSY VERSUS NO SURGERY

Thoracotomy With Biopsy and No Resection

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	0	0	0	0	0
B	0/6	0/6	0/6	0/6	0/6
C	5/19	1/19	1/19	1/19	1/19
	(26%)	(5%)	(5%)	(5%)	(5%)
D	3/26	2/26	1/26	0/26	0/26
	(12%)	(8%)	(4%)	—	—
Total ..	8/51	3/51	2/51	1/51	1/51
	(16%)	(6%)	(4%)	(2%)	(2%)

No Surgery

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	2/2	0/2	0/2	0/2	0/2
	(100%)	—	—	—	—
B	3/17	1/17	0/17	0/17	0/17
	(18%)	(6%)	—	—	—
C	3/19	0/19	0/19	0/19	0/19
	(16%)	—	—	—	—
D	11/136	1/136	0/136	0/136	0/136
	(8%)	(0.7%)	—	—	—
Total ..	19/174	2/174	0/174	0/174	0/174
	(11%)	(1.2%)	—	—	—

VII reveals the older age groups (60-69 and 70-79) who underwent surgery had survival rates nearly equal to the 50-59 group, rather than a decreasing survival with age, as illustrated in Table VII.

Finally, patients who had surgical resection are divided according to tumor cell type and Feinstein class and are displayed in *Table XII.* Most noteworthy in this analysis is the 82 per cent five-year survival of squamous cell victims who had resection, and the overall survival of six patients with undifferentiated carcinoma of the lung, usually considered a rapidly-fatal lesion.

TABLE XI

YEARLY SURVIVAL RATES BY AGE GROUPS IN PATIENTS UNDERGOING RESECTION FOR LUNG CANCER

Age	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
30-39	1/1	1/1	0/1	0/1	0/1
	(100%)	(100%)	—	—	—
40-49	6/13	3/13	3/13	3/13	3/13
	(46%)	(23%)	(23%)	(23%)	(23%)
50-59	29/47	24/47	19/47	18/47	17/47
	(62%)	(51%)	(40%)	(38%)	(36%)
60-69	30/50	24/50	23/50	19/50	18/50
	(60%)	(48%)	(46%)	(38%)	(36%)
70-79	5/9	3/9	3/9	3/9	3/9
	(56%)	(33%)	(33%)	(33%)	(33%)

Discussion

Feinstein has recently expanded the traditional classification system of lung cancer by adding the mode of rate of growth as determined by the pa-

TABLE XII

YEARLY SURVIVAL RATES IN LUNG CANCER BY HISTOLOGIC CELL TYPE IN PATIENTS UNDERGOING RESECTION

Squamous Cell Carcinoma

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	10/11	9/11	9/11	9/11	9/11
	(91%)	(82%)	(82%)	(82%)	(82%)
B	21/29	17/29	14/29	14/29	14/29
	(72%)	(59%)	(55%)	(48%)	(48%)
C	4/11	4/11	4/11	3/11	3/11
	(36%)	(36%)	(36%)	(27%)	(27%)
D	1/8	0/8	0/8	0/8	0/8
	(13%)	—	—	—	—
Total ..	36/59	30/59	29/59	26/59	26/59
	(61%)	(51%)	(49%)	(44%)	(44%)

Undifferentiated Carcinoma

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	3/3	3/3	3/3	3/3	2/3
	(100%)	(100%)	(100%)	(100%)	(67%)
B	7/13	5/13	3/13	1/13	1/13
	(54%)	(38%)	(23%)	(8%)	(8%)
C	4/14	4/14	4/14	4/14	3/14
	(29%)	(29%)	(29%)	(29%)	(21%)
D	3/6	0/6	0/6	0/6	0/6
	(50%)	—	—	—	—
Total .	17/36	12/36	10/36	8/36	6/36
	(47%)	(33%)	(28%)	(22%)	(17%)

Adenocarcinoma

Feinstein Class	*1 yr.*	*2 yrs.*	*3 yrs.*	*4 yrs.*	*5 yrs.*
A	7/7	5/7	4/7	4/7	4/7
	(100%)	(71%)	(57%)	(57%)	(57%)
B	4/6	4/6	3/6	3/6	2/6
	(67%)	(67%)	(50%)	(50%)	(33%)
C	3/6	0/6	0/6	0/6	0/6
	(50%)	—	—	—	—
D	2/4	2/4	1/4	1/4	1/4
	(50%)	(50%)	(25%)	(25%)	(25%)
Total .	16/23	11/23	8/23	8/23	7/23
	(70%)	(48%)	(35%)	(35%)	(30%)

Note: Two missing cases of surgical resection were Class A alveolar cell carcinoma patients who survived five years or more.

tient's symptomatology to classic anatomic criteria. His basis for this innovation stems from the observation that disappointing survival figures for patients with early lesions may be due to already present metastatic disease which often is missed anatomically but is present symptomatically. Feinstein combined the classical three classes of anatomical staging with three clinical classes according to information obtained from the patient to develop four clinicoanatomical stages of lung cancer with a prognosis gradient from A to D.

The purpose of this analysis was an attempt to validate Feinstein's clinicoanatomical staging system for lung cancer by attempting to duplicate his findings with data gleaned from the medical records of 345 lung cancer patients at the Kansas University Medical Center. With few exceptions primarily due to small sampling numbers, the study concurred with Feinstein and revealed a decreasing prognosis gradient of yearly survival rates in every category examined when patients were assigned according to Feinstein's system. The overall five-year survival rates were 68 per cent for Stage A, 24 per cent for B, 10 per cent for C, and 0.6 per cent for D, or a combined figure of 12 per cent for all survivors, a statistically significant difference from Feinstein's overall 7 per cent ($X^2 = 9.0$, $P < 0.005$). A significant difference was also discovered between Feinstein's 25 per cent survival for simple and 21 per cent for radical resection, and the KUMC study figures of 43 per cent for simple and 24 per cent for radical surgery.

Several other noteworthy and interesting aspects of lung cancer were found in the KUMC series. The incidence of lung cancer is 8 times as high in men as in women, which accounts for the striking difference shown in *Figure 1*. However, there was no significant difference in the overall survival rates of men and women. The peak age for all lung carcinomas was 60-69 in this study, and the 50-59 group had a higher overall survival, although the difference in the 50-80 age groups who underwent resection was essentially the same. Robbins[8] reports an incidence ratio of 70:10:20 for squamous cell, adenocarcinoma, and undifferentiated carcinomas; however, this series revealed nearly equal incidence of squamous cell carcinoma and undifferentiated carcinoma, while adenocarcinoma accounted for 14 per cent. The total number of Class D adenocarcinomas and undifferentiated tumors was greater than the number of A-C cases of each type, which could suggest the silent and rapid growth and spread of these lesions. The overall survival for cases of squamous cell and adenocarcinoma was nearly the same, while in resection patients, those with squamous cell cancers had a five-year survival rate of 44 per cent and adenocarcinoma patients 30 per cent, not a significant difference ($X^2 = 1.3$, $P > 0.2$).

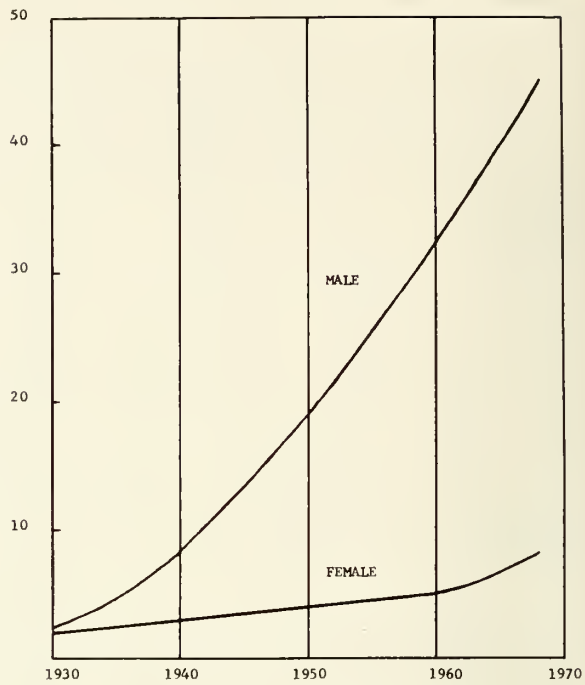

Figure 1. Lung cancer death rates per 100,000 population in the United States, 1930-1968[1] (Death rates per 100,000 population).

In summary, the stage of disease appears to more reliably predict success or failure than the type of disease in the KUMC study. It also appears well worth while to treat anaplastic lesions in the early stages, as evidenced by the six patients who did survive five years after simple resection of their undifferentiated carcinoma. In the 345 cases reviewed, all but one of the 42 five-year survivors underwent surgical resection of their tumor.

The findings reported in this series at the KUMC are compatible with those reported by Feinstein. His clinicoanatomical staging system appears to be a valuable aid to the physician in evaluating the lung cancer patient and predicting his eventual survival chances.

References

1. Silverberg, E. and Holleb, A. I.: Cancer Statistics 1972. *CA* 22:2-20, 1972.

2. Carbone, P.; Frost, K. and Feinstein, A. *et al.*: Lung cancer: Perspectives and prospects. *An. Intern. Med.* 73:1003-1024, 1970.

3. Lilienfield, A.: An evaluation of radiologic and cytologic screening for the early detection of lung cancer: A cooperative pilot study of the American Cancer Society and the Veterans Administration. *Cancer Res.* 26:2083-2121, 1966.

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Growth Patterns and Diabetes

Control in Diabetic Children

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PRIOR TO THE USE of insulin, retarded growth resulting from metabolic derangement[1] or inadequate dietary intake[2] was an inevitable finding in juvenile diabetics. A trend toward normal growth emerged after insulin was introduced.

The height of juvenile diabetics has been observed to be normal at the onset of the disease and at the attainment of final adult growth.[1,3,4] The growth pattern between these two extremes is altered in certain age groups studied, but is grossly normal overall.[1,5] These and other growth studies[2,5] of children with diabetes mellitus have shown that while compensated diabetes is compatible with normal growth, many children with the disease do not grow normally. However, some authors have stated that degree of diabetic control affects growth, while others have not found a relationship between growth retardation and level of diabetic control.[5] The implication of these studies[2,6] is that the maintenance of good control will lead to normal growth and poor control leads to slow growth.

Materials and Methods

The clinical records of 105 lower-middle to upper-middle class white children with diabetes mellitus were reviewed. Of these, 55 were girls and 50 were boys. They had been followed for an average of six years in private practice.

All patients received Lente or neutral protamine Hagedorn (NPH) insulin alone or in combination with regular insulin. Their allowed caloric intake was calculated by prescribing 1,000 calories for the first year of age, and 100 calories for each succeeding year. The maximum intake was 2,200 calories for girls and 3,000 calories for boys. The daily diet consisted of 3-4 gr protein/kg body weight with carbohydrate/fat ratio of approximately 2:1.

The urine was tested regularly in all patients for glucose and ketones. Fasting blood glucose, serum cholesterol, and a 24-hour quantitative urine glucose were determined every 3-6 months. Serial heights were recorded on the standard pediatric growth chart of Falkner.[7,8] A child was considered to have a decreased or an increased growth rate when the growth curve deviated from or rose above the normal curve already established, even though it might not fall below or above two standard deviations from normal. Normal growth rates followed the normal curves. No child was included who had not had heights recorded for at least two years during the study period.

This paper reports the general growth characteristics of a population of diabetic childen with special attention to the relationship between the adequacy of diabetic control and the maintenance of a normal growth pattern as measured by height.

Results were judged independently for the degree of control maintained by the patients during the period of management. This judgment was based on a modified criteria previously published.[9]

Good control was: (1) no hospitalization except for the initial admission or the treatment of severe infections; (2) 24-hour quantitative urine glucose of 12 gm or less; (3) urine free of glucose at least 50 per cent of the time, and acetone 75 per cent of the time. Poor control was: (1) two or more hospitalizations per year for control of diabetes other than for severe infections; (2) 24-hour quantitative urine glucose greater than 25 gm; (3) glucosuria more than 50 per cent of the time. Fair control was intermediate.

Results

A nearly equal percentage of boys and girls maintained good and fair control with more than one half of the children maintaining good control *(Table 1)*.

Analysis of the rates of growth showed that 58 per cent of the boys and 69 per cent of the girls grew normally over the study period following the onset of diabetes. Decreased rates of growth were shown by 26 per cent of the boys and 18 per cent

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TABLE 1
THE DEGREE OF CONTROL OF DIABETIC CHILDREN

Degree of Control	*Boys*	*Girls*	*Total*
Good	28 (56%)	28 (51%)	56 (53%)
Fair	21 (42%)	22 (40%)	43 (41%)
Poor	1 (2%)	5 (9%)	6 (6%)
Total	50 (100%)	55 (100%)	105 (100%)

of the girls. Increased rates were shown by 16 per cent of the boys and 13 per cent of the girls. Therefore, 74 per cent of the boys and 82 per cent of the girls grew at normal or better than normal rates, while the remaining children grew at less than their established normal rates *(Table 2)*.

TABLE 2
THE GROWTH RATES OF DIABETIC CHILDREN

Growth Rate	*Boys*	*Girls*	*Total*
Normal ..	29 (58%)	38 (69%)	67 (63%)
Increased	8 (16%)	7 (13%)	15 (15%)
Decreased	13 (26%)	10 (18%)	23 (22%)
Total	50 (100%)	55 (100%)	105 (100%)

The compilation of growth rates as compared with degree of control fails to demonstrate any positive correlation. Of those patients in good control, 78 per cent grew normally or better than normal, as did 79 per cent of the patients in fair control *(Table 3)*. Of those in poor control, 67 per cent grew at normal or better than normal rates. This number of patients is too small to evaluate its significance.

TABLE 3
THE EFFECT OF DEGREE OF CONTROL ON THE RATE OF GROWTH OF DIABETIC CHILDREN

Degree of Control	*Normal*	*Increased*	*Decreased*	*Total*
Good .	37 (65%)	7 (13%)	12 (22%)	56 (53%)
Fair ..	27 (63%)	7 (16%)	9 (21%)	43 (41%)
Poor ..	3 (50%)	1 (17%)	2 (33%)	6 (6%)

Both boys and girls tended to be normal or slightly below normal in height at the onset of their disease *(Table 4)*. No children were included whose height was not available within six months of the age of onset of diabetes.

TABLE 4
HEIGHT, BY PERCENTILE, OF DIABETIC CHILDREN AT THE ONSET OF THEIR DISEASE

Height Percentile	*Boys*	*Girls*	*Total*
-5	2	1	3
5-50	20	22	42
50-95	12	15	27
95-	0	0	0

When growth rates were compared with the ages of onset *(Table 5)* it was noticed that children whose disease began between the ages of 4 and 10 years were more likely to show a slowing of growth. Of the 43 children of this age at onset, 17 showed a decreased rate of growth. This incidence (40%) is nearly twice the 22 per cent shown from all age groups of the general diabetic population, and high when compared to 6 per cent with decreased growth (2 of 32 patients) in the 10 years and older age group, and to 13 per cent with decreased growth (4 of 30 patients) in the 0-4 years age group. Of those 17 with decreased growth, 10 (59%) maintained good control and seven (41%) fair or poor control. This is no different from the general study group in degree of control.

TABLE 5
THE GROWTH RATES OF DIABETIC CHILDREN AT EACH AGE OF ONSET

	Rates of Growth								
	GIRLS			BOYS			TOTAL		
Age of Onset	N	I	D	N	I	D	N	I	D
0-2	7	1	1	0	2	1	7	3	2
2-4	4	1	2	7	4	0	11	5	2
4-6	3	1	1	4	1	3	7	2	4
6-8	5	0	5	7	0	2	12	0	7
8-10	4	0	0	1	0	6	5	0	6
10-12	10	2	1	9	1	0	19	3	1
12-14	4	2	0	1	0	1	5	2	1
14-	1	0	0	0	0	0	1	0	0

N—normal, I—increased, D—decreased.

Comment

The goal in the management of juvenile diabetics is to control the disease and to make the life of the diabetic child as normal as possible. One part of this goal is the attainment of a normal growth pattern. It is physiologically attractive to propose that good disease control brings about a normal growth profile. It is known that in untreated juvenile diabetics

growth is stunted and that, in some instances, inadequate insulin and improper diet result in Mauriac's syndrome.[10] However, this study shows no demonstrable correlation between degree of control maintained by the patients and growth rates.

It is of interest to note that children with onset of diabetes between the ages of 4 and 10 years (41% of all patients) were more likely to show a decreased growth, since during these years the rate of annual gain in general is constant or declining.[2, 3] We can offer no explanation for this finding.

Summary

One hundred five juvenile diabetics were studied, and degree of diabetic control was compared with height profile. The children were normal or slightly below normal in height at the onset of their disease. Of the diabetic children studied, 78 per cent grew normally or better than normal during the period of the study, and 22 per cent showed rates of growth slower than normal. There was no correlation between degree of control and growth rates. Adequate growth rates should not be included as criteria for good diabetic control, and one should not conclude that because growth is adequate, control must also be adequate.

References

1. Beal, C. K.: Body size and growth rate of children with diabetes mellitus. *J. Pediat.* 32:170, 1948.
2. Wohltmann, H. J.: Diet and evaluation of physical status, in Diabetes mellitus in infants and children. Report of the 12th M&R Pediatric Research Conference, Columbus, Ohio, 1955, p. 58.
3. Sterky, G.: Growth pattern in juvenile diabetics. *Acta Paediat. Scand.* 177:80, 1967.
4. White, P.: Childhood diabetes—its course, and influence on the second and third generations. *Diabetes* 9:345, 1960.
5. Jackson, R. L. and Kelly, H. G.: Growth of children with diabetes mellitus in relationship to level of control of the disease. *Proc. Amer. Diabetes Assoc.* 6:437, 1946.
6. O'Brien, D.: Childhood diabetes: A contemporary reevaluation. *Clin. Pediat.* 5:25, 1966.
7. Falkner, F.: Some physical growth standards for white North American children. *Pediatrics* 29:467, 1962.
8. Falkner, F.: The physical development of children. *Pediatrics* 29:448, 1962.
9. Gamstorp, I.; Shelburne, S. A., Jr.; Engleson, G.; Redondo, D. and Traisman, H. S.: Peripheral neuropathy in juvenile diabetes. *Diabetes* 15:411, 1966.
10. Traisman, H. S.: Mauriac's syndrome. *Clin. Pediat.* 3:520, 1964.

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4. Weiss, W.; Boucot, K. and Cooper, D.: The Philadelphia pulmonary neoplasm research project: Survival factors in bronchogenic carcinoma. *JAMA* 216:2119-2123, 1971.
5. Feinstein, A. R.: Symptomatic patterns, biologic behavior and prognosis in cancer of the lung. *Ann. Intern. Med.* 61:27-43, 1964.
6. Feinstein, A. R.: Symptoms as an index of biological behavior and prognosis in human cancer. *Nature* 209:241-245, 1966.
7. Feinstein, A. R.: A new staging system for cancer and reappraisal of "early" treatment and "cure" by radical surgery. *New Eng. J. Med.* 279:747-753, 1968.
8. Robbins, S. L.: *Pathology.* 3rd Edition. Philadelphia, W. B. Saunders, 1967, p. 755.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

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Progressive Cerebellar Dyssynergia

The Use of Diazepam

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ONLY 13 NEW pure cases of progressive cerebellar dyssynergia have been reported since 1914, when J. Ramsey Hunt first described three cases with a syndrome he called dyssynergia cerebellaris progressiva. In addition to the intention (volitional) tremor which is the most striking and characteristic symptom, dyssynergia, dysmetria, hypotonia, adiadokokinesia, and intermittent asthenia are also components of this syndrome.[1] Some cases of this syndrome have been associated with myoclonus epilepsy and with Friedreich's ataxia.

As a presenting symptom, the patients usually display a tremor of one extremity, but they may exhibit dysarthria, or side-to-side involuntary movements of the head as well. Over a period of a few to several years, the tremor spreads to the entire body while the upper extremities show the greatest degree of involvement. Manifesting temporary exacerbations, the coarse, irregular shaking never disappears except during rest. One patient had two types of involuntary movement: a coarse, irregular tremor, most striking when the limb was unsupported, *i.e.,* influenced by gravity, and a fine, more regular tremor which did not seem to vary under different conditions.[4] In dysmetria and dyssynergia, the patient is unable to perform quick, rhythmical movements; in addition, adiadokokinesia is closely associated with these symptoms. The intermittent asthenia is an inability to sustain muscular contractions except for short periods of time even though no true paralysis exists. Hypotonia is evidenced by soft, flabby muscles, thus, the joints may be hyperextended. There is an absence of true nystagmus and vertigo.

Case Report

A 47-year-old white male developed difficulty with his handwriting when he was in his early 20s and a student at the university. In spite of the tremor, he continued his studies.

Immediately following graduation, he had two distinct and separate episodes of numbness and tingling of the hands and feet. Beginning first in his fingers and toes, the numbness and tingling spread to his hands, arms, feet, and legs. The first episode occurred at age 28, and the second at age 34.

A case of progressive cerebellar dyssynergia of Ramsey Hunt is reported. Review of the existing literature on this syndrome is discussed in relation to the case. The incidence of neurological abnormalities in the patient's family is mentioned. Differential diagnoses are considered. The treatment regimen used in this case is described.

Since age 28, he has been followed by the Veterans Administration Hospital system. In spite of the fact that he had no visual disturbances, a diagnosis of multiple sclerosis was made. While he continued to carry this diagnosis, he feared blindness, paralysis and a chronic disease resulting in death, until he was re-diagnosed at age 45.

Of the ten children in his family, he, along with his mother, an older sister and an older brother, as well as the two younger brothers (both deceased) developed neurological diseases. His mother, now 78, was described as having suffered from parkinsonism as long as our patient could recall, at least since he was six or seven years old.

His sister had been diagnosed as having multiple sclerosis. Her symptoms were described as severe dysarthria, inability to walk, but no tremor. Although confined to a wheelchair since age 42, she has never had loss of bladder or bowel control, nor has she had visual disturbances. Neither the sister nor their mother had been examined by a neurologist.

A third member of this family affected by neurological disease was a brother, age 55. An officer in the armed services, he was retired for medical reasons after becoming blind. While the specific reason for this blindness is not known, the brother has also experienced the same type of numbness as described by our patient.

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When our patient was 36, a younger brother, who was a mongoloid, died at age 24. He was the second sibling to die in this family. The first was also a boy, who died shortly after birth. Both deaths resulted from unknown causes.

Present neurological examination of our patient produced the following results: no nystagmus, with the extraocular muscles intact; the fundi and visual fields normal. He had a normal swallow. The tongue showed a gross tremor which was absent at rest. His voice was also tremulous. This tremulousness was produced both by laryngeal tremor and an inability to sustain an even expiratory flow of air. A tremor of his head was present, but it decreased to absent at rest. This same tremor was evenly demonstrated in all extremities. It was a definite intention tremor, quite marked on the right side, and so severe that the patient was unable to hold any food or drink in his hand, or feed himself without the use of specially designed eating ware. His handwriting showed gross impairment, necessitating the use of both hands to sign his name. Deep tendon reflexes of both extensors and flexors of the arm and leg were increased on the right side. Generally, there was no loss of muscle strength, but this strength could not be sustained after periods of exercise. Some myoclonic twitching of the pectoral muscles could be noted. His coordination when doing movements in succession was impaired. The patient exhibited a rebound phenomenon of the upper extremities. With the Romberg sign absent, he exhibited a broad-based ataxic gait. The examiner could not elicit abdominal reflexes. However, the pain, tactile, vibratory, and position senses were normal.

At this time, he demonstrates no mental or emotional impairment, although he has had episodes of depression and he has gone through various family crises. He seems to fluctuate between periods of resolve and acceptance of the incapacitating and progressive nature of his illness to periods of denial at facing the inevitability of this disease process.

Laboratory examinations, including blood chemistries, complete blood count, urinalysis, EEG, skull and chest x-rays, lumbar puncture, and spinal fluid studies have all been within normal limits. Chromosome studies have shown 15 to 18 per cent of the cells have abnormal karyotypes.

The severe intention tremor has been controlled to a minor degree by using 5-10 mg of diazepam (Valium) by mouth 30 minutes before each meal.

Discussion

In the case we have just presented, it is unfortunate to note that this patient's disorder continued to be misdiagnosed for approximately 10 years. While progressive cerebellar dyssynergia of this type is a rare syndrome, it should be considered in cases where a volitional tremor is seen (especially when there is a relative sparing of gait). Differential diagnosis of this condition should include other degenerative disorders of the central nervous system, such as multiple sclerosis, paralysis agitans (Parkinson's syndrome), hepatolenticular degeneration (Wilson's disease), chronic progressive Huntington's chorea, and spastic pseudosclerosis. Also to be ruled out are cerebellar encephalitis, hereditary (familial) tremor, and hysterical neuroses of the conversion type.

In our case, similar to those reported by others, symptoms began between 20 and 30 years of age. A disabling tremor of the hands was the first sign noted. Although the family members were not examined, their histories are strongly suggestive of a hereditary-familial tendency to this syndrome. Chromosome studies of the patient did show that 15 to 18 per cent of those cells examined had karyotypes which are abnormal, which we would consider within the normal limits. In contrast with Dr. Flood's case,[4] repeated fasting blood sugars were all normal.

The symptoms in our case consisted mainly of disturbances in synergic control, producing an ataxic volitional tremor. Nystagmus, vertigo, mood changes, pyramidal, or sensory tract symptoms were never seen.

Due to the lack of cases coming to autopsy, the etiology of this disease is still not clear. Of the two autopsied cases found in the literature, the most significant pathological feature was widespread degeneration of myelinated fibers, most marked in the dentato-rubro-thalamic pathwaves.[2, 3]

Prognostically, this disease is chronic and progressive but, as seen with our patient, not incompatible with many years of life. Because of the course of this disease, treatment has been directed toward symptomatic relief. During periods of depression and through episodes of family crises, supportive individual psychotherapy and family therapy is useful. Special eating utensils are used, designed to prevent tipping or sliding of glasses and plates, so that the patient can feed himself. A food guard is also used to prevent food from sliding off the plate. We have found that diazepam (Valium) 5-10 mg 30 minutes before each meal is helpful in controlling the tremors. A benzodizepine, diazepam (Valium) has been shown to have muscle relaxant, with antistrychnine and spinal-reflex-blocking effects. It is assumed that these properties are functional in decreasing the tremor in this case. Other treatment recommendations include genetic counseling of the family. Submersion in water to produce a relative antigravity environment was also suggested as both a diagnostic and a treatment method.[4]

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Clinical Cardiology

Carotid Sinus Reflex

STEPHEN F. VATNER, M.D.,* *La Jolla, California*

For the past half century, the carotid sinus reflex has been the focus of intense physiological interest and investigation. This fundamental cardiovascular reflex influences and regulates arterial pressure, heart rate, myocardial contractility, and peripheral vascular resistance. Recently, exogenous stimulation of this reflex has been employed as a diagnostic and therapeutic tool.

The carotid sinus is a dilatation of the internal carotid artery near its origin at the bifurcation of the common carotid artery. Afferent information from the carotid sinus is relayed to the cardiovascular centers in the brainstem via the carotid sinus nerve, a branch of the glossopharyngeal. The efferent loop of the carotid sinus reflex comprises both sympathetic and parasympathetic pathways to the heart, which influence heart rate and myocardial contractility and sympathetic pathways to the adrenal medulla and the peripheral arterial and venous vasculature. The reflex functions as a negative feedback system, *i.e.*, an increase in arterial pressure increases afferent nerve traffic to the cardiovascular center, which in turn reflexly reduces peripheral vascular resistance, heart rate, myocardial contractility, and circulating catecholamines; all of which tend to return arterial pressure to control. Carotid sinus hypotension produces opposite results. A similar reflex arises from a pressure sensing mechanism located in the aortic arch. These reflexes comprise the major baroreceptor systems. The baroreceptors serve to maintain arterial pressure and cardiovascular dynamics relatively constant.

Excessive activation of the carotid sinus reflex may produce carotid sinus syncope. Susceptible patients with a hyperactive carotid sinus reflex are, therefore, prone to episodic hypotension and syncope; characteristically in elderly men especially, those who wear high, tight collars, and young women just prior to menstruation. Patients afflicted with Takayasu's syndrome, a non-specific arteritis affecting the subclavian and carotid arteries of young women, are susceptible to carotid sinus syncope.

One established therapeutic and diagnostic maneuver involving the carotid sinus is differentiation of supraventricular from ventricular arrhythmias, and the interruption of paraoxysmal atrial tachycardia by manual carotid sinus massage. Massage simulates arterial hypertension and results in a reduction of sympathetic tone, and a simultaneous increase in vagal tone to the heart. Thus, automaticity decreases, conduction slows, and the tachycardia is frequently abruptly terminated.

Carotid sinus massage has several potential pitfalls. The technique cannot be applied to all patients since carotid blood flow may be compromised in the presence of coexisting cerebral vascular disease. Syncope, cardiac standstill due to excessive vagal inhibition of the sino-atrial or AV nodes; dislocation of an arterial thrombus or plaque with consequent cerebral embolsim are potential risks that can be minimized by careful monitoring of heart rate and limitation of duration of compression.

The carotid sinus nerves can be activated by a new technique now utilized for interrupting disabling, recurrent attacks of paroxysmal atrial tachycardia. The baroreflex is activated by electrical stimulation of the carotid sinus nerves, again, like manual stimulation, stimulating the afferent limb of the reflex arc and tending to slow the heart rate and interrupt the attack by decreasing sympathetic tone and increasing in vagal restraint. At operation electrodes are implanted bilaterally on the carotid sinus nerves and a radio-frequency receiver attached to the electrodes is placed in a subcutaneous pocket. After the recovery from operation, the patient activates a radio-frequency pacemaker to stimulate the carotid sinus nerves electrically via the receiver-electrode circuit. Thus, the reflex can be activated immediately by the patient as needed, stimulation can be discontinued abruptly, and stimulation may be initiated safely and repeatedly.

Carotid sinus massage has been used as a tool in the diagnosis of angina pectoris for many years. Recently, carotid sinus nerve stimulation has been employed also in the therapy of angina pectoris by Braunwald and co-workers. Angina pectoris results from a disparity between the oxygen requirements of the myocardium and oxygen availability via myocardial blood supply. Electrical stimulation of the carotid sinus nerves tends to diminish the myocardial oxygen requirements primarily by reducing ar-

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terial pressure, left ventricular afterload and myocardial wall tension, while it reduces heart rate and myocardial contractility to a lesser extent. In addition, carotid sinus nerve stimulation produces reflex coronary vasodilatation through a reduction in resting sympathetic coronary constrictor tone. The reduction in myocardial oxygen requirements and possibly increased supply has proven to be beneficial to patients utilizing electrical carotid stimulation to terminate attacks of angina pectoris.

Since the main function of the carotid sinus reflex is to regulate arterial pressure, carotid sinus nerve stimulation has been utilized in the therapy of the most common disorder of blood pressure, essential hypertension. Altered function of this reflex may contribute to sustained hypertension in this disorder. Persistent electrical carotid sinus stimulation has lowered blood pressure substantially for as long as five years. In some cases, actual regression of eye-ground changes has occurred. This technique, in association with antihypertensive drug therapy, is being used successfully for the treatment of moderate and severe hypertension.

Activation of the carotid sinus reflex is a useful diagnostic tool. Experiments in animals by Vatner and associates have demonstrated that the characteristics of the reflex change with altered states of consciousness, *i.e.*, a differential pattern of autonomic outflow occurs in the conscious organism as opposed to during sleep or after general anesthesia. Baroreceptor function can be assessed in man by measurement of heart rate after administration of angiotensin intravenously. This drug raises arterial pressure by increasing peripheral resistance. The elevated arterial pressure then causes reflex slowing of heart rate. The relationship between the rise in arterial pressure and reflex slowing has been characterized in normal individuals and has been found to be altered in patients with hypertension and those with congestive heart failure. Diminished baroreceptor sensitivity has been demonstrated in both these disease states and may contribute to maintenance of essential hypertension.

Thus, the carotid sinus reflex, a cornerstone of cardiovascular physiology for half a century, is now being utilized in cardiovascular diagnosis and therapy. Electrical stimulation of the carotid sinus nerves is being employed to treat angina pectoris, recurrent supraventricular tachycardia, and essential hypertension. In addition, altered responsiveness of the baroreceptors in disease states may be valuable diagnostically and may provide further understanding of the pathophysiology of several circulatory disturbances.

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

POSTGRADUATE MEDICAL EDUCATION

Symposia:

ANESTHESIOLOGY

April 23, 24 and 25, 1973

Guest Faculty:

E. J. BENNETT, F.F.A.R.C.S., Abraham Lincoln School of Medicine.

L. DONALD BRIDENBAUGH, M.D., University of Washington School of Medicine.

PHILIP R. BROMAGE, F.F.A.R.C.S., McGill University.

RUDOLPH H. de JONG, M.D., University of Washington School of Medicine.

M. T. JENKINS, M.D., University of Texas Southwestern Medical School.

RONALD D. MILLER, M.D., University of California Medical Center.

JOHN B. PARMLEY, M.D., Hotel Dieu Hospital, New Orleans.

THEODORE C. SMITH, M.D., University of Pennsylvania Medical School.

Subjects to be discussed will include:

WHAT'S NEW IN ANESTHESIOLOGY, FLUIDS AND FLUID THERAPY and PAIN.

Fee—$90.00.

NEW ADVANCES IN ELECTROCARDIOGRAPHY

May 14 and May 15, 1973

Guest Faculty:

ANTHONY N. DAMATO, M.D., Department of Health, Education and Welfare.

CHARLES FISCH, M.D., Indiana University School of Medicine.

MAURICE LEV, M.D., Northwestern University Medical School.

HUBERT V. PIPBERGER, M.D., George Washington University School of Medicine.

BORYS SURAWICZ, M.D., University of Kentucky Medical Center.

Subjects Include:

PRINCIPLES AND TECHNIQUE OF HIS' BUNDLE RECORDING.

WHY IS THERE A CONTROVERSY ABOUT HEMIBLOCKS?

CLINICAL APPLICATION OF COMPUTERIZED ECG SYSTEM.

ELECTROPHYSIOLOGIC CONTRIBUTION TO UNDERSTANDING OF A-V BLOCK.

GENESIS OF T-WAVE CHANGES.

Fee—$65.00.

For program announcement and information, write:

Department of Postgraduate Medical Education
University of Kansas Medical Center
Kansas City, Kansas 66103

Student
THESIS

The Use of Marijuana by Medical Students

MARTIN H. GROTHEER, M.D.,* *Wichita*

PERHAPS AS OLD AS CIVILIZATION, first mentioned in writings of the ancient Egyptians, Assyrians, and early Chinese medical literature, and prominent in ancient religious ceremonies of India, the Indian hemp plant *Cannabis sativa* (varieties indica, americana, and others), has regained a place in North American culture. Known by many names in various cultures, the resin and flowering parts have been used as an analgesic, anti-convulsant, muscle relaxant, hypnotic, sedative, anti-psychotic agent, oxytoxic, and even antibiotic.[1] The most common use of marijuana, hashish, pot, grass, dope, stuff, or any of a number of other eponyms, whether in religious ceremonies or as a recreational or hedonistic part of modern cultures, has been to produce a euphoric high. Such notables as George Washington, Baudelaire, Lewis Carroll, Nietzsche, Aldous Huxley, and many others recorded statements revealing their familiarity with the effects of marijuana. It has even been suggested with some evidence that the fairy tale of Jack and the Beanstalk has too many analogies to pot experimentation to be a coincidence.[2]

Many American studies during the late 1960s and early 1970s reflected an increasingly permissive attitude toward the use of marijuana, particularly in the college-age population though certainly not limited to this age group. Age, class, academic performance, ethnic background, socio-economic status, sexual experience, to list just a few, have been studied vis-à-vis marijuana use by college populations. Studies of varying reliability have also been reported on the use of marijuana by American troops in Vietnam, by high school adolescents and by younger persons, by the country club and cocktail clientele, and earlier in the 1960s by ghetto residents. The names of actors, politicians, statesmen, and other prominent individuals and their children have been linked with the use of marijuana. The legality, morality, physical and psychological effects have been debated extensively, frequently with diametrically opposed conclusions.[3]

Comments by AMA officials and other prominent physicians on marijuana usage raise the question: Is marijuana usage incompatible with effective functioning in the physician's role? Though it would not answer the question definitively, the attitudes and practices of medical students themselves would be at least interesting and possibly even enlightening. This is a group interesting because of some exposure to the drug scene as college students, and now in training leading to a professional career intimately involved with drugs. In the medical literature on marijuana are two recent surveys involving medical students. With this in mind, it is not the purpose of this paper to make a judgment on the use of marijuana, but to present an analysis of the usage in one Midwestern medical school, which may or may not reflect current attitudes of medical students nationwide toward marijuana.

A questionnaire consisting of eleven objective and four subjective questions was distributed. In the first and second year classes, these were filled out and

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the School. Dr. Grotheer completed serving his internship at the St. Francis Hospital, Wichita, in December 1972.

TABLE I

Year in Medical School	Responded	Ever Used Pot	Frequency* INF.	MOD.	OFTEN	Current Use INF.	MOD.	OFTEN	TOTAL	Cigarette Users CURRENT USE OF CIGARETTES	POT USE	CURRENT POT USE	Have Used Other Drugs
1	142	80 (56.3%)	42	32 (1 no response)	5	12	8	4	24 (17%)	16	11	4	14
2	129	60 (46.5%)	33	19	8	13	7	5	25 (19.4%)	21	14	8	15
3	51	22 (43.1%)	9	6	7	7	2	7	16 (31.4%)	10	6	3	8
4	71	30 (42.3%)	18	9	3	9	4	3	16 (22.5%)	10	5	4	5
Total	393 (79%)	192 (48.9%)	102	66	23	41	21	19	81 (20.4%)	57	36	19	42

* Infrequently = 1-10 times; Moderately = 10-25 and 25-100 combined; Often = 100 or more times.
1) Infrequently = 1 time/month or less; 2) Moderately = 1 time/week-1 time/month; 3) Often = 1 time/week or more.

returned in the classroom, yielding a return of 98 and 99 per cent respectively. In the third and fourth year classes, these were distributed via mail boxes, and the return was 40 and 56 per cent. Approximately 25 per cent of juniors and seniors were on free time during the administration of the questionnaire and it is impossible to know how many of these students received the questionnaire. A total of 393 questionnaires, or 79 per cent of those distributed in the four classes, were returned. *Table I* illustrates some of the results. Though a decreasing percentage had tried marijuana in the upper classes, the percentage of current users did not follow this pattern. There are at least two possible sources of error to account for fluctuation in figures on current usage: (1) the survey was done early in the school year when many first-year students may not have yet established a cultural pattern in their new surroundings; and (2) the relatively small total number but high per cent of frequent pot-users in the third-year class may have distorted the overall picture.

An interesting correlation was the question asking the nonusers whether they had had an opportunity to smoke pot. The response showed that among these nonusers, 70 per cent of the first-year, 60 per cent of the second-year, 44 per cent of the third-year, and 40 per cent of the fourth-year students have had the opportunity. This probably reflects the ubiquitousness of marijuana in more recent years.

An interesting sidelight is that only 23 per cent of second-year users first experienced pot after entering medical school, while the figures for the same groups in the third- and fourth-years were 64 per cent and 67 per cent respectively. All first-year students had begun prior to medical school, but it should be remembered that the questionnaire was circulated shortly after classes had commenced.

The students were also asked when they had first used marijuana. By far the majority of all respondents first used pot during or after 1968. Nearly 100 per cent of those who first used pot before 1967 continued its use at the time of the study. A corresponding decrease in the percentage of current users was seen in those who had first used marijuana since 1967. About 25 per cent of those who initially tried pot in the first eight months of 1971 still used it. Here it is necessary to point out that many more individuals tried pot in recent years than before 1968, so in absolute numbers many more recent experimenters continue its use.

Correlations also appeared between the use of grass and that of tobacco. Of 57 cigarette smokers, 36 had tried pot and 19 claimed to be current users. This indicates that about 20 cigarette smokers had never tried pot while some 20 still used it. Strikingly, of 81 current pot users, 62 did not currently smoke cigarettes. This may mean that these students

are convinced that pot is less harmful than tobacco.

The students were also questioned about the use of other drugs. A total of 42 students, or slightly more than 10 per cent of those answering the questionnaire, had experimented with drugs other than in a laboratory or prescription setting. Of these, two had never tried pot. Of the remaining 40, 30 had used marijuana 25 times or more. This figure corresponded to the 50 per cent of the total number (59) who had used marijuana 25 or more times. The most commonly used drugs were LSD, amphetamines, mescaline, and psilocybin.

Short questions were asked about the availability, legality, and estimated usage of marijuana by medical students. In both absolute and relative numbers, many more first- and second-year students indicated that pot is easily available. In all classes, those who had used pot thought it was more easily available. Only 23 believed that easier availability would increase their use of marijuana. A larger minority (61) indicated that more lenient laws would lead them to use marijuana more frequently. These were by no means all current users of grass and a few in both categories had never tried grass. Medical students were then asked to estimate what percentage of their class currently used marijuana. No definitive conclusions could be drawn from their answers, but in general those who had never used pot slightly underestimated the reported figure while past and current users guessed a bit too high.

About one month after this study, an informal poll was taken on a nearby university campus. There, of the 219 students questioned at random, 69 per cent indicated they had smoked marijuana. The incidence of current usage (64%) and the frequency of usage was correspondingly higher than among the medical students.

In August 1971, Lipp and associates in the *American Journal of Psychiatry* reported on marijuana usage by medical students at four medical schools: one on the West Coast, two on the Eastern seaboard, and one in the Midwest. Their study, done in the spring of 1970, revealed differences in use according to the social patterns of the geographical area. With a 62 per cent return, they found a range from about 70 per cent past users and 44 per cent current users in two schools, to 17 per cent past and 6 per cent current users in one school. The fourth school approached the average of 50 per cent past and 30 per cent current users. Although this study was carried out some 18 months prior to the present survey, the average incidence of past use was consistent in the two reports. Current use was slightly higher in their survey. Lipp *et al.*,[5] did not reveal which geographical area correlated with which incidence, but did state that there was a correlation. For obvious reasons it would be interesting to know which of their figures came from the Midwestern medical school.

Lipp's survey also indicated that more students in all four schools would use marijuana if the laws were liberalized and if medical research did not reveal long-term deleterious effects, an attitude that correlated with the current survey. In any event, by far the majority in both surveys indicated they would continue their present use regardless of any softening of the laws.[5]

Another survey published in *JAMA* on September 6, 1971 by Sloursh and others, dealt more with the attitudes of medical students toward marijuana effects on physical and mental health. Included in this survey of senior students at medical schools in California and Ontario, however, were statistics showing some 73 per cent of the California sample had used pot, contrasted by the 43 per cent of Ontario senior medical students. Similarly, a correspondingly higher percentage currently use it monthly or more frequently in the California (41%) than in the Ontario (13%) sample.[6]

In conclusion, a significant number of students in one medical school admitted having experimented with marijuana. Currently, more use marijuana than cigarettes, notwithstanding the legality of the matter. Moreover, about two-thirds of medical upper classmen who had used pot first experimented with it after starting medical school despite the obviously dire possible repercussions. Whether the trend in medical students reflects transient campus attitudes or whether marijuana, as some maintain, will become as firmly entrenched as alcohol is impossible to say. The fact that a significant number of intelligent and relatively conservative young people, bent on responsible lives as physicians, are using marijuana with no discernible effects on performance, is one more argument that legal sanctions should be made commensurate with the best scientific studies available on the effects of this age-old euphoriant.

References

1. Mikuriya, T. H.: Historical aspects of cannabis sativa in western medicine. The New Physician, pp. 902-908, 1969.

2. Andrews, G. and Vinkenoog, S.: *The Book of Grass: An Anthology on Indian Hemp*. New York, Grove, 1967, pp. 135-182.

3. Simon, W. and Gagnon, J. H.: Children of the drug age. *Sat. Review* 75-78:60-63, 1968.

4. Anker, J. L.; Mitman, D. H.; Kahan, S. A. and Valenti, C.: Drug usage and related patterns of behavior in university students. *J. Amer. Coll. Health Ass.* 19(3): 178-186, 1971.

5. Lipp, M. R.; Benson, S. G. and Taintor, Z.: Marijuana use by medical students. *Amer. J. Psychiat.* 128(2):207-212, 1971.

6. Sloursh, L. P.; Weinstock, S. J.; Saunders, C. S. and Ungerleider, J. T.: Attitudes of medical students toward cannabis. *JAMA* 217(10):1371-1372, 1971.

The President's Message

This is the last time you have to consider my limping, literary output, or to be inflicted with my picture on this page. Your gain is my loss, for I have truly enjoyed the honor you have given me and all the things that have gone with it, including this chance to reason with you monthly.

It has been a very good year. There was no squabbling amongst ourselves. Consumers are less critical. Our public relations are a little better. The legislators have, so far, been attentive to our thoughts. And, as usual, you have served cheerfully and well when your Medical Society needed you.

I am always filled with awe when I see a meeting room filled with doctors and consider the hours spent, the distances traveled, and the dollar value of both. It helps your officers, when the going seems heavy, to reflect on the importance you attach to and the sacrifices you make for your Medical Society.

Thank you for the best year of my life.

Kenneth L. Graham MD

President

This Perplexing Power

In pondering the evident ambivalence of the public toward its physicians, we have arrived at the conclusion that it is related to the concept of power. This is a word that is getting excessive use at the moment and means different things to different people, but our interpretation in this context is the capability for and application of the control of one individual or group over another.

Fear of external power is the corollary of the love of freedom. Man is uneasy in the face of power. His self-centrism demands that he control his own destiny, a patent impossibility in a complex society. So he is in continual compromise with external powers, trying to reconcile protection *from* power with protection *by* power. The primal intellect, recorded in folklore and legend (more accurate reflections than formal history), recognizes the invasion by power as malign —haunting, possessing, bewitching—or benign—exalting, elevating, deific. Whether for good or evil, this invasion takes something from the individual in return for the effect it bestows.

This, then, is the individual who presents himself to the physician with his medical problem. He seeks comfort and healing, but to achieve this he must deliver himself into the power of another individual. He may be so ill in body that he willingly transfers control of his own destiny to this agent in a form of therapeutic contract, or he may be so ill in mind and spirit as to seek this transferance to anyone who will accept the obligation he abhors.

The problems facing the physician today stem from the interpretation and application of his power. His lack of availability at all times and in all places and to all people is interpreted as an expression of his power to provide his service only at his own pleasure. Legal actions against him are actions against his power to provide the service by his own standards, whether of availability, capability, or communication. His self-determined fee for his service represents his power to assess its value in monetary terms without regard for the patient's entrapment. The individual patient with ready access to his physician, informed application of the service, and justifiable charge sees this power as benign and no threat to his integrity, but the impersonal public sees it as potentially malignant and, therefore, in need of control.

The physician is both loved and feared because of this power. It does not matter if he discounts this power—he is not the one assessing it, for the patient, in his acceptance of the diagnostic and therapeutic regimen, determines to large extent its effectiveness. The diagnosis may be frightening and the physician becomes the "cause" of this distress, or he may become the advocate who will effect relief, or, usually, a combination of the two. Into the contract, in fine print, the patient inserts the clause, "I give over to you this thing which is of prime importance to me—myself. Now you are obligated to return me healed—and *whole.*" The patient thereby accepts the beneficence of the power but reassures himself he will not remain under its dominance.

Payment of the physician's fee may be the mechanism by which the patient further relieves himself of this dominance—or it may seem an unjustified demand which exemplifies the power of the physician. If the patient feels he had no voice in the determination of the fee or accepted the obligation under the coercion of pain or discomfort, he will find it easy to consider it unjustified after the stress of illness is relieved and to feel subjugated by the power of the physician to dictate the monetary value of the service. His interpretation will be determined by his concept of the power of the physician as it has been applied to him.

However satisfactory the patient's personal adjustment to the physician, he is constantly aware of the threat of illness and injury and longs for the assurance that he will not be invaded by these powers. However grateful he is for the service in a specific instance, he somehow views this individual who profits from such a power as an instrument of it. Thus, while he may be restrained from reaction against his personal physician, he readily accepts complaints and

(Continued on page 180)

114th Annual Session

Kansas Medical Society

May 6-9, 1973

Holiday Inn Plaza, Wichita

Make Your Reservations Now!

Welcome to Wichita

Once again it is the privilege of the Medical Society of Sedgwick County to act as host for the annual meeting of the Kansas Medical Society. We consider this an honor, and hope that our efforts will make the members' visit a happy and congenial experience.

As the program indicates, the sportsmen will gather to contest against one another (and tell lies too) at the Robert Trent Jones designed Crestview Country Club, on May 7, 1973.

The official headquarters and site of the meetings of the House of Delegates will be the Holiday Inn Plaza. The general scientific sessions will be held in Century II, which is only a stimulating stroll away.

Drs. Gerald Nelson and Albert Michelbach have prepared a program that should provide "food for the intellect" of epicurean quality. And a morsel of Kansas grown, Kansas prepared prime rib or steak on the side, certainly, can't detract from a pleasurable interlude either.

Come join us, and during the periods of fellowship, keep the intellectual and gastric juices flowing gently as you renew old acquaintances and meet new faces.

Thomas C. Hurst, M.D., President

Medical Society of Sedgwick County

Program Directory

SUNDAY, MAY 6

Exhibits—1:00 p.m.-5:30 p.m.
Registration—Tickets—Information—1:00 p.m.
Kansas Allergy Society—12:00—Regal Inn
Kansas Foundation for Medical Care—1:00 p.m., Corporate Members; 2:00 p.m., Board of Directors
House of Delegates First Session—3:00 p.m. (registration—2:15 p.m.)

MONDAY, MAY 7

Kansas Obstetrical Society—7:30 a.m.
Section on Ophthalmology—7:30 a.m.
Exhibits—7:30 a.m.-2:00 p.m.
Registration—Tickets—Information—7:30 a.m.
Reference Committees—8:00 a.m.
Sports Day—Kansas Medical Society Golf, Skeet and Trap Association
Golf—10:30 a.m.—Crestview Country Club
Shooting—1:00 p.m.—Ark Valley Gun Club
Fun Night Reception and Dinner—6:00 p.m.—Crestview Country Club

TUESDAY, MAY 8

Registration—Tickets—Information—7:30 a.m.
Past Presidents' Breakfast—7:30 a.m.
Exhibits—8:00 a.m.-4:30 p.m.
General Sessions—8:50 a.m.
Speakers: George Owens, M.D.
James J. Nora, M.D.
Robert E. Shank, M.D.
Kansas Coroners Association—12:30 p.m.
General Luncheon—12:45 p.m.
Speakers: William O. Rieke, M.D.
D. Cramer Reed, M.D.
General Session—2:30 p.m.
Speakers: Robert E. Shank, M.D.
Stanley J. Dudrick, M.D.
Reception—University of Kansas Medical Alumni—5:30 p.m.
Banquet—Kansas Medical Society—7:00 p.m.

WEDNESDAY, MAY 9

Registration—8:00 a.m.
House of Delegates Second Session—8:30 a.m.—Gold Room, Kiva Level
Council Meeting—Palm Room, 25th Floor

CHRISTIAN MEDICAL SOCIETY

Meeting in conjunction with the Kansas Medical Society Annual Meeting, Sunday, May 6, 1973—Wrangler (5401 E. Harry, Wichita).

Speaker: Joe Ludders, Western CMS Representative. For details, please contact C. C. Drevets, M.D., 7306 Norfolk, Wichita 67206.

Hosts for the Meeting

Wichita Physicians Arranging 1973 Session

GENERAL CHAIRMAN—Gerald D. Nelson, M.D.

PROGRAM COMMITTEE
Albert P. Michelbach, M.D., Co-Chairman
Charles R. Block, M.D., Co-Chairman

SPORTS DAY

Terry L. Poling, M.D., Co-Chairman, Golfing
Richard J. Cummings, M.D., Co-Chairman. Golfing.
Harold S. Bowman, M.D., Chairman, Shooting

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION

Sunday, May 6, 1973

12:00 KANSAS ALLERGY SOCIETY
The Regal Inn

1:00 REGISTRATION—TICKETS—INFORMATION
Kiva Level, Holiday Inn Plaza
HOUSE OF DELEGATES
Gold Room, Kiva Level
Holiday Inn Plaza
Clair C. Conrad, M.D., Dodge City
Speaker
M. Robert Knapp, M.D., Wichita
Vice Speaker

1:00 KANSAS FOUNDATION FOR MEDICAL CARE, CORPORATE MEMBERS
Gold Room, Kiva Level

2:00 KANSAS FOUNDATION FOR MEDICAL CARE, BOARD OF DIRECTORS
Gallery Room

2:15 REGISTRATION OF DELEGATES

3:00 FIRST SESSION

TELEPHONE NUMBER 316 264-1181/614

Monday, May 7, 1973

Holiday Inn Plaza

MORNING

7:30 **Specialty Societies**—Breakfast and Business Meetings
Kansas Obstetrical Society
Holiday Inn Restaurant
Kansas Section on Ophthalmology
Holiday Inn Restaurant

7:30 Registration—Tickets—Information
Kiva Level, Holiday Inn Plaza

8:00 Reference Committee A
Palm Room, 25th Floor
Reference Committee B
Terraee Room, 25th Floor

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION

SPORTS DAY

Kansas Medical Society Golf, Skeet and Trap Association
Terry L. Poling, M.D., Wichita, President

10:30 Golfing—Crestview Country Club

1:00 Shooting—Ark Valley Gun Club

FUN NIGHT

6:00 Reception
Crestview Country Club

7:30 Sports Banquet
Crestview Country Club
Newton Graber and the Inter Seene Combo

TELEPHONE NUMBER **316 264-1181/614**

Century II Civic Center

MORNING

7:30 Registration—Tickets—Information
7:30 Past Presidents' Breakfast
Terrace Room, Holiday Inn Plaza

THE AMERICAN DIET

FIRST GENERAL SESSION
Albert P. Michelbach, M.D.
Wichita, Presiding

8:50 Welcome
Thomas C. Hurst, M.D., President
Medical Society of Sedgwick County
Response
Kenneth L. Graham, M.D., President
Kansas Medical Society

9:00 Nutritional Status of U. S. Children 1968-1970
George Owens, M.D.
Children's Hospital, Columbus

9:45 Pediatric Diet as a Risk Factor for Coronary Artery Disease
James J. Nora, M.D.
Director, Pediatric Cardiology
University of Denver

10:30 Intermission to View Exhibits

10:50 The American Diet—Some Medical Implications
Robert E. Shank, M.D.
Preventive Medicine and Public Health
Washington University

11:30 Film
Infant Nutrition
Feeding the Infant—Building the Man

TELEPHONE NUMBER 316 262-9420

May 8, 1973

NOON

12:30 KANSAS CORONERS ASSOCIATION LUNCHEON
Pool Side, Regal Inn

12:45 GENERAL LUNCHEON
Gold Room, Holiday Inn Plaza
Gerald D. Nelson, M.D.
Wichita, presiding
PROGRESS AND PLANNING FOR EXPANDED HEALTH EDUCATION IN KANSAS
William O. Rieke, M.D.
Vice-Chancellor, Health Affairs
University of Kansas School of Medicine

1:45 AN UPDATE ON DEVELOPMENT OF THE WICHITA STATE UNIVERSITY BRANCH OF KUMC
D. Cramer Reed, M.D.
Dean, College of Allied Professions
Wichita State University

AFTERNOON

Century II Civic Center

SECOND GENERAL SESSION

Charles R. Block, M.D.
Wichita, presiding

2:30 DIET—HOW IMPORTANT A RISK FACTOR FOR CORONARY ARTERY DISEASE
Robert E. Shank, M.D.
Preventive Medicine and Public Health
Washington University

3:15 HYPERALIMENTATION OF THE DEBILITATED PATIENT
Stanley J. Dudrick, M.D.
Department of Surgery
University of Texas

VISIT THE EXHIBITS—REGISTER FOR DRAWINGS

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION

TELEPHONE NUMBER 316 262-9420

Tuesday, May 8, 1973

Crestview Country Club

EVENING

ANNUAL PRESIDENT'S BANQUET—KANSAS MEDICAL SOCIETY

5:30 RECEPTION FOR PHYSICIANS AND WIVES
Sponsored by K.U. Medical Alumni Association

7:00 DINNER
Kenneth L. Graham, M.D., Leavenworth, presiding

INVOCATION
INTRODUCTION OF GUESTS

OATH OF OFFICE TO INCOMING PRESIDENT

"HEAR! HEAR!" THE VOICES OF CHORAL ARTS
Directed by Edla Hilts

President and President-Elect

KENNETH L. GRAHAM, M.D.
Leavenworth

THOMAS F. TAYLOR, M.D.
Salina

Wednesday, May 9, 1973

Holiday Inn Plaza

8:00 Registration—Information
Kiva Level

8:30 House of Delegates—Second Session
Gold Room, Kiva Level

1:00 Luncheon for the Council
Palm Room, 25th Floor

Visit the Exhibits! Register for Drawings!

Century II Civic Center

Hours

Sunday, May 6—1:00 p.m.-5:30 p.m.

Monday, May 7—7:30 a.m.-2:00 p.m.

Tuesday, May 8—8:00 a.m.-4:30 p.m.

A calculator will be given away at the Sports Dinner on Monday evening, May 7.

A calculator will be given to the lucky winner at the President's Banquet on Tuesday evening, May 8.

YOU MUST BE PRESENT TO WIN!

TELEPHONE NUMBER 316 264-1181/614

Exhibits

The exhibits, located in Century II Civic Center, will be open Sunday, 1:00 p.m. to 5:30 p.m.; Monday, 7:30 a.m. to 2:00 p.m.; and Tuesday, 8:00 a.m. to 4:30 p.m. Register at the exhibit booths for drawings to be held at the Fun Night Dinner on Monday evening and the President's Banquet on Tuesday evening.

Booth No.	
5	**Washington National Insurance Co.** Evanston, Illinois
7	**MISCO Leasing, Inc.** Wichita, Kansas
9	**Hoechst Pharmaceuticals, Inc.** Somerville, New Jersey
10	**G. D. Searle & Company** Chicago, Illinois
11	**Coca-Cola U.S.A.** Chicago, Illinois
12	**Medical Protective Company** Fort Wayne, Indiana
14	**Doctors Diagnostic Laboratories** Minneapolis, Minnesota
15	**Munns Medical Supply Co., Inc.** Topeka, Kansas
16	**E. R. Squibb & Sons** Princeton, New Jersey
17	**Casualty Indemnity & Exchange** Denver, Colorado
18	**The Columbian Securities Corporation** Topeka, Kansas
19	**Health Education Programs, Inc.** Denver, Colorado
24	**Kansas Blue Shield** Topeka, Kansas
25	**A. H. Robins Company** Richmond, Virginia
26	**Lederle Laboratories** Pearl River, New York
27	**Bristol Laboratories** Syracuse, New York

The Kansas Medical Society is grateful for
the convention program grants received from

Duffens Optical Co.
Topeka, Kansas

Eli Lilly & Company
Indianapolis, Indiana

A. H. Robins Company
Richmond, Virginia

Merck Sharp & Dohme
West Point, Pennsylvania

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION—*Compliments of Berlin-Wheeler, Inc., Topeka*

Woman's Auxiliary to the Kansas Medical Society

May 6-9, 1973, Wichita

Sunday, May 6

1:00-4:00 Registration, Fountain Area, Holiday Inn Plaza
Hospitality Room, Drawing Room, Holiday Inn Plaza

Evening Dinner, Christian Medical Society

Monday, May 7

7:45-4:00 Registration, Fountain Area, Holiday Inn Plaza

8:30-11:30 Breakfast and Scientific Session
Riviera Room, Holiday Inn Plaza
Reconstructive Surgery
Medicine Man to Modern Medicine

12:00 Social Hour and Luncheon, Kings Terrace, Regal Inn

2:30-5:00 Hospitality Room, Drawing Room, Holiday Inn Plaza

3:30 Pre-Convention Board of Directors Meeting, Gallery Room, Holiday Inn Plaza

6:00 Fun Night—Reception and Dinner
Crestview Country Club
Newton Graber Combo

Tuesday, May 8

7:45-4:00 Registration, Fountain Area, Holiday Inn Plaza

8:00-12:30 Breakfast and General Session
Riviera Room, Holiday Inn Plaza

1:00 Brown Bag Lunch and Concert
Kiva Area (outside), Holiday Inn Plaza

2:30-5:00 Hospitality Room, Drawing Room, Holiday Inn Plaza

5:30 K.U. Medical Alumni Reception
Crestview Country Club

7:00 President's Banquet—Kansas Medical Society, Crestview Country Club
Entertainment:
The Voices of Choral Arts

Wednesday, May 9

8:30-10:00 Registration, Fountain Area, Holiday Inn Plaza

9:00 Breakfast
Gallery Room, Holiday Inn Plaza

9:45 Post-Convention Board of Directors Meeting, Gallery Room, Holiday Inn Plaza

10:30-2:00 Hospitality Room, Drawing Room, Holiday Inn Plaza

Kansas Medical Assistants Society

May 4-6, 1973, Regal Inn, Wichita

Friday Evening, May 4

6:30 Past Presidents' Meeting—President's Suite

7:00 Registration—Regal Inn, Lobby, 6th Floor

8:00 "Spring Fling"—King's Garden
—Courtesy Munns Medical Supply Co., Inc.

Saturday, May 5

7:30 Executive Board Meeting—Room 610
Registration—Lobby, 6th Floor
Coffee—Lobby, 6th Floor
—Courtesy Midwest Surgical Supply, Inc.

Uniform Style Show and Display
—Courtesy Clark's Uniforms

8:00 Mini Test—Crown Room

9:15 Call to Order—Crown Room
Betty Dangherty, Meade, President Kansas Medical Assistants Society Presiding

9:25 Welcome
T. C. Hurst, M.D., Wichita President Medical Society of Sedgwick County

9:35 Response
Kenneth L. Graham, M.D. Leavenworth, President Kansas Medical Society

9:45 House of Delegates

12:00 Luncheon—"Spring Garden"—Room 610
KMAS Component Chapter Presidents

1:30 House of Delegates

2:00 What's What in Health Education at Wichita State University
D. Cramer Reed, M.D., Dean College of Health Related Professions Wichita State University

3:00 Total Joint Replacements
James M. Baehr, M.D., Wichita

4:00 Coffee
—Courtesy Credit Bureau of Wichita

4:15 Leadership Training
Leigh Snow, CMA, Albuquerque, N. M. AAMA Trustee

7:00 Banquet—"April Showers"—Crown Room
Master of Ceremonies
H. J. Meulbroek, M.D.
Presentation of Awards
Installation of Officers
Dorothy Gunn Installation Officer

Sunday, May 6

7:30 Breakfast—Room 610
New and Retiring Officers and Committee Chairmen

8:00 Coffee—Lobby, 6th Floor
—Courtesy Kansas Blue Cross Blue Shield

9:00 Call to Order—Crown Room
Betty Dangherty, President, Presiding

9:30 Is It True What They Say About Hypnosis?
Maurice Tinterow, M.D., Wichita

10:30 A Glaciological Adventure: An Experience in Self-Reliance
Lee S. Fent, M.D., Newton

12:30 Luncheon—"May Flowers"—King's Garden

Immediately following adjournment, meeting of new officers and board members in Room 610.

Councilor Reports

Activities in the Council Districts of Kansas

DISTRICT 1

During the past year, all eligible members were contacted either in person or by mail for the purpose of joining the Kansas Foundation for Medical Care. A very good response can be reported.

The renal dialysis machine, formerly located in the Atchison hospital, was transferred to the Kansas City area for more efficient utilization.

Medical offices of Drs. W. Spencer Fast and John T. Growney had burned. Temporary quarters are located in a residence which later will become the home of the Valley Hope Project. The Valley Hope Project has been established and is proceeding well. It will be an operation similar to that fomerly located at Norton.

This district has had a good meeting with the President, Dr. Kenneth L. Graham, and Mr. Jim Agin, of the Executive Office. The meeting and dinner were held at the Knights of Columbus Hall. The district looks with favor on the expansion of the KMS Executive Office in Topeka.

WAYNE O. WALLACE, M.D., *Councilor*

DISTRICT 2

District 2 of the Kansas Medical Society is comprised of the Wyandotte County Medical Society and the Student Medical Society at KUMC. Since there has been no real contact this year with the Student Society, this report will be on the activities of the Wyandotte County Medical Society. WCMS was responsible for increasing the total membership of KMS by 33 during the year. We feel this is quite an accomplishment in that we usually lose just about as many members as we gain—but this year our total voting membership went from 276 at the beginning of 1972, to 309 at the end of 1972.

One of the most rewarding activities of the Wyandotte County Medical Society during the year was their involvement in assisting the City of Kansas City, Kansas, in rewriting their ambulance ordinance, which was passed by the city commission and became effective April 1, 1973. This is a model ordinance which requires the proper type of equipment and training for ambulance personnel before licenses will be issued. The medical society is actually named in the ordinance as the organization responsible for the certification of ambulance attendants before they can be licensed. The society's Emergency Medical Care Committee has been active in setting up the standards of training necessary for certification and is continuing its activity in setting up training programs for the Type I (paramedic) ambulance attendant, which have not been available previously.

WCMS has also been quite active this year in the Area Medical Council, the organization of the medical societies in the Greater Kansas City Area, with our immediate past president, W. David Francisco, M.D., serving as chairman, and our Executive Secretary also serving as executive secretary for the Council. Our Executive Office will continue as the Council's executive office for 1973, even though a new chairman was elected.

We again had a combined meeting with District 3 in October, with the President of KMS, Kenneth L. Graham, M.D., as the speaker. This was the second year we had a combined meeting. The first year, the meeting was held in Johnson County with the majority of those present from Johnson County. The second year, the meeting was held in Wyandotte County with the majority of those present from Wyandotte County. It is our feeling that the combined meeting is not serving the purpose it was hoped it would and, therefore, we would be better off to return to having our own individual meetings with the President of the Kansas Medical Society.

JOHN D. HUFF, M.D., *Councilor*

DISTRICT 3

Council District 3 concentrated its activities during the past year on attempting to bring speakers to its meetings who would be able to give the attending physicians an updating on some of the services that are available in relation to their clinical work. Dr. Charles Workman, Kansas City, Missouri, in charge of the Mayor's Medical Emergency Service Development Committee, spoke rather extensively about the proposals which Kansas City, Missouri, has made for improving medical emergency services in the entire metropolitan Kansas City area. One of our members attended the meeting of the Medical Emergency Services Committee in Jacksonville, Florida, where a very comprehensive Medical Emergency Service is established. Dr. Loren J. Humphrey was heard on another occasion about his proposal for breast

cancer study in the state of Kansas. Dr. Edward D. Lyman, the Director of the Kansas Department of Health, reviewed the activity of his department on another occasion. An outstanding lecture on the subject of Mechanism of Hypertension was heard from Dr. Edward D. Frolich, Professor of Medicine at the Oklahoma Medical School. Dr. Frolich's lecture on that subject is recommended to all Kansas medical districts as an excellent program, both from the standpoint of interest and in practical knowledge. Our annual meeting with the Bar Association was held in the spring of 1972, which included members of the local association who practice in the Johnson and Wyandotte County area. The Johnson County Medical Society has recently concluded an arrangement with the Department of Ecology at the University of Kansas Medical Center, wherein the medical society has received funds from the Kansas Regional Program, which funds will be used to finance some of the projects under the Ecology Department's Roots of Responsibility Series. Local community projects of a socio-medical nature (for example, VD screening in high schools) will be seeded by funds from this association.

District 3 looks forward to its participation in the Kansas Foundation for Medical Care with curiosity and questing for new ways of dealing with long standing problems.

DONALD J. SMITH, M.D., *Councilor*

DISTRICT 5

Dr. Kenneth Graham, in his annual visit to District 5, called for increased participation of all members in the activities of our medical society.

Reflecting upon the 20 years since graduation, members of my class of '53 can observe many changes in the climate in which we practice.

Medical care has been declared a human right rather than a human need. Rights are guaranteed by law under our system of government.

This concept has been sold by politicians and social planners in government and bought by the voting public.

The result is the attachment of governmental controls to health care.

What controls?

Self-imposed: We registered our usual and customary fees with the computer. The read-out of this mass of data computes a fixed fee.

The relative value scales which we established leave only the unit value as the variable in your payment for services.

The unit value can be, and in fact is, regulated by governmental edict.

Administrative edict restricts fee changes. Price control allows insufficient change in fees to meet inflation.

We have experienced state control by proration of our fees under Title XIX, and the federal government proration on Title XVIII.

Chiropractic has been admitted to federal health care programs in spite of the opposition of George Meany and Wilbur Cohen. Amazing!

Further extensions of government control are promised.

Most politicians and the public press believe that national health insurance is an idea whose time has come.

Congressman Roy told a joint meeting of the Prairie Medical Society and the Riley County Medical Society that maldistribution of health care will not be solved until we can assign physicians to locations which do not normally attract them—the rural and ghetto areas.

What will the politicians and social planners think up for us during the next 20 years?

It would seem necessary for physicians to participate in efforts by the Kansas Medical Society and KaMPAC to encourage communication with legislators, Representatives, and Senators.

GERALD L. MOWRY, M.D., *Councilor*

DISTRICT 6

Progress toward a Shawnee County Foundation Plan has reached a stage of finalization in recent months. Its structure will be similar to the state plan, but its local functions will be geared initially to the area of medical education. Peer review will be coordinated with the state Foundation plan as this evolves during the coming months.

A joint committee with members from the county medical society and the local Bar Association has been working on mutual problems and recently promoted a dinner meeting for the full membership of both organizations. The medical society was host for the occasion and hopes to encourage better understanding and improved communication at all levels of medico-legal involvement.

The primary concern of the physicians of this district continues to be the adequate delivery of quality medical care to the people of this area. We are continuing to work with the various community planning councils and local action groups to help solve this problem. It is our expectation that the Foundation structure will facilitate some of these efforts. We are also encouraged by the addition of 12 practicing physicians in the Topeka area during the past year.

RICHARD R. BEACH, M.D., *Councilor*

DISTRICT 7

The Flint Hills District has another outstanding physician with the arrival of a urologist, Carlos Funes, M.D., in Emporia. The membership is increasingly concerned with government intervention in the practice of medicine. The Kansas Public Health Service local district nurse has openly expressed as an ideal the inclusion of all health services under their jurisdiction. This has led to much conjecture regarding their long-range goals.

With the acquisition of a Hycel autoanalyser and the immediate purchase of a microchemistry mini procedure equipment, our standard of care continues to improve.

E. G. Campbell, M.D., *Councilor*

DISTRICT 8

District 8 has been tranquil this year. The District meeting was held in Arkansas City, Kansas, October 26, 1972, with the President, Dr. Kenneth L. Graham, his charming wife, and Mr. Jim Agin, Executive Assistant, present for the meeting. Dr. Graham discussed the present and future activities of the Kansas Medical Society.

The local society has had some excellent programs with discussions on malpractice insurance, HMOs, PSROs, and the Kansas Foundation plan.

The University of Kansas circuit courses were held in Arkansas City this year and were well attended by the physicians from surrounding counties and from Oklahoma.

We have had six new physicians join the Cowley County Medical Society during the last year, which has alleviated some of the physician shortage in this area. We hope the plans for the training of medical students in Wichita will start on schedule, making more physicians available to the surrounding rural area.

The legislative program of the Kansas Medical Society to inform our legislators on health issues seems to be working well, and gives our members an opportunity to visit with our legislators in a friendly and informal setting. We also attempt to communicate at the grass roots level with the Bar Association by having a joint Christmas party, which has been quite successful over the past years.

Your Councilor will continue to keep members posted regarding information concerning our District.

S. S. Daehnke, M.D., *Councilor*

DISTRICT 9

We had a good turnout of members from the Council District 9 to our usual meeting with the President of the Kansas Medical Society, giving us interesting remarks on some of the problems and progress of the medical society. This meeting was held at the George Washington Carver Inn in Minneapolis, Kansas, on November 20. The Council members' wives were also invited. We had 78 people in attendance.

The Council District also filled the vacancy of a representative from our district to the Blue Shield Board. This was done by canvas of the Council District, with Dr. Herb Doubek, of Belleville, being elected to that position. This was necessitated with the appointment of Dr. James E. Roderick to the Blue Shield Board.

We are also presently working on the appointment of a peer review committee from our Council District to the Kansas Foundation on Medical Care. We presently have 43 members from our district who have joined the Kansas Foundation for Medical Care. We hope to increase this number significantly.

Dr. Jack Lungstrum, Salina, has served as the Alternate Councilor for this district.

Kermit G. Wedel, M.D., *Councilor*

DISTRICT 11

The two most important and far-reaching activities of the Medical Society of Sedgwick County during 1972 were the Medical Foundation and the relationship with KUMC to bring students to the Wichita medical community for part of their clinical years. Both have been making progress and have had the active participation of the society.

The meetings with the other providers of service have been held and agreements drawn up, whereby they have agreed to participate in the Foundation plan for Title XIX. The Foundation has been incorporated and at the present time has been working with Dr. Harder and his representative to implement the treatment of Title XIX patients in the Sedgwick County area under the Foundation plan. We look forward to this being an accomplished fact during 1973. Dr. Harder is hoping the Legislature will formally approve such a venture.

Society members have been active on the Wichita Medical Education Association, which meets with WSU and KUMC to establish an effective program and liaison to provide a good experience for the medical students. Committees of the WMEA are studying curriculum and department head appointments. Hopefully, the first class of students will arrive this fall from KU Medical Center.

The society is also in the final stages of establishing a county-wide paging system for physicians that will have a 15-20 mile radius and also provide a measure of privacy.

The local Legislative Committee has been active studying bills in the State Legislature that apply to medicine. It is also working with the state committee on Legislation, attempting to provide more medical opinion and expertise to the legislators. On the local level, we have a doctor who is a contact for each of our local state representatives and senators.

During 1972, the society sponsored a tour of the Mediterranean which 90 of our Kansas physicians and their wives enjoyed. Because of this pleasant experience, a tour is planned in July of this year of the Scandinavian countries.

At the present time, negotiations are under way to merge our local Blue Shield Review Committee with the local County Society Peer Review Committee. At this time, meaningful discussions have been held and the details are being worked out between the society and Blue Shield.

The Society is revising the Emergency Medical Council to provide better communication with the available emergency units at the hospitals and the community.

The society has also been fortunate to have a record number of 23 new physicians establish practice in Wichita during 1972.

WARREN E. MEYER, M.D., *Councilor*

DISTRICT 13

There have been no problems of any great significance in Council District 13 in the past year. The annual meeting of the Council District was held this fall, and Dr. Kenneth Graham was in attendance and presented his annual report to the district. The Peer Review Committee has been active throughout the year, and I wish to thank them for their time which they have freely donated. Dr. A. M. Cherner has retired from his practice of radiology. He was the Councilor from this district for two terms and has served on many committees, both on the local and state level. I wish to thank him on behalf of his many friends and colleagues for his many years of conscientious service.

EUGENE T. SILER, M.D., *Councilor*

DISTRICT 15

This has been a rather quiet year in District 15. The professional make-up of this particular district has remained much the same until recent months which have seen the loss of men from the smaller towns either due to retirement or illness with little hope of replacement. We still need certain specialists in the larger centers, as well as generalists to replace those lost as mentioned above.

An effort to increase a lagging interest in the annual District meeting was attempted by joining with District 14 in Garden City. However, this was not particularly successful, probably due to the increased distance involved, the inclement weather, and the fact that four of the towns in District 15 were directly involved in state high school football playoffs. This latter item is certainly not of professional value but is a matter of pride for the southwest, not to be matched by any other district.

This fall has seen the beginning of a program called Physician Conferences for southwest Kansas. This program has been initiated by the Regional Medical Program Center at Great Bend and is based on the premise that there are physicians of sufficient expertise in the area to present seminars of interest to all physicians at several centers in the southwest. This, coupled with the KU circuit course, shows a marked effort to increase educational opportunities in this part of the state.

R. H. HILL, M.D., *Councilor*

DISTRICT 16

All the people of northwest Kansas, and especially the physicians of District 16, were saddened by the sudden death of Dr. Paul Hornung, of Colby, on October 14, 1972.

The KUMC circuit courses were well attended as usual, and the evening dinner meetings and social activities were always enjoyable. Our District meeting with our President, Dr. Kenneth Graham, was very poorly attended because of stormy weather.

We welcome into our midst Dr. James J. Ryan, who has recently established his practice in Hill City, and Dr. Clitus Olsen, who has recently come to Goodland.

HERMAN W. HIESTERMAN, M.D., *Councilor*

DISTRICT 17

Council District 17 has met several times this year. On November 3, we met with President Kenneth Graham and Mr. Jim Agin, where the Foundation, malpractice insurance, and politics were discussed.

Of course, District 17 needs many more doctors, as I understand Kansas in general also needs more. We must have healthier patients out here or else we put in more hours. The ratio of doctor per patient is more than 1 to 2,000, and several counties have only one doctor.

We are grateful for the new doctors who have moved into our district and wish that they would bring several others with them.

Syracuse has almost completed a new medical complex which promises to be one of the best in the

state. Greely and Wichita counties plan to somehow consolidate the medical facilities of their two counties, so that their only doctors may have a little relief from their 24-hour days.

Several of our doctors have talked at various meetings throughout our district. These have been informative.

There has been much interest in health planning in many of our communities. We have met with doctors and lay representatives throughout our area to plan and ascertain health needs for five to 15 years. These meetings have been well chaired and attended and results have been stimulating.

GALEN W. FIELDS, M.D., *Councilor*

DISTRICT 18

District 18 met in Ottawa, Kansas, on October 24, 1972. The assembly was unable to nominate or elect a director for the Kansas Foundation for Medical Care. It was also unable to nominate or decide on a method of election of a Councilor.

A. C. MITCHELL, M.D., *Councilor*

NECROLOGY REPORT

Following is a list of the members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates.

Name and Address		*Date*
Horace Lee Galloway, *Anthony*	87	Sept. 8, 1972
Mary Glassen, *Phillipsburg*	70	Dec. 23, 1972
Herbert W. Gootee, *Topeka*	85	Oct. 18, 1972
Henry F. H. Haerle, *Marysville*	79	July 13, 1972
James T. Hamilton, *Wichita*	58	Feb. 12, 1973
Leo E. Haughey, *Concordia*	85	Nov. 22, 1972
John W. Hertzler, *Newton*	66	Dec. 8, 1972
S. Paul Hornung, *Colby*	53	Oct. 14, 1972
Joseph J. Hovorka, *Emporia*	73	Oct. 30, 1972
Leslie L. Huntley, *Washington*	69	May 27, 1972
Fred R. Isaacs, *Lawrence*	74	Jan. 12, 1973
Robert G. Klein, *Wichita*	80	Aug. 25, 1972
William A. Love, *Kansas City*	84	Dec. 31, 1972
Delano I. Maggard, *Wichita*	96	Feb. 6, 1973
John F. McDonnell, *Caldwell*	84	Oct. 29, 1972
Robert H. Moore, *Leavenworth*	72	Nov. 26, 1972
Clyde E. Partridge, *Emporia*	76	Apr. 19, 1972
William G. Rinehart, *Pittsburg*	72	Aug. 10, 1972
Joseph Shaffer, *Simpson*	86	Aug. 23, 1972
David W. Stubbs, *Topeka*	38	May 10, 1972
Jesse L. Wentworth, *Arkansas City*	88	Aug. 25, 1972
Chester L. Young, *Kansas City*	64	Oct. 21, 1972
Charles L. Youngman, *Harveyville*	96	Mar. 18, 1973

NOMINATING COMMITTEE

The Nominating Committee submits the following list of nominations for the elective offices of the Kansas Medical Society. Wherever more than one nomination appears, these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

John N. Blank, M.D., Hutchinson. Born in 1907. Graduated from the University of Kansas School of Medicine in 1938. Is serving as president of the Kansas State Board of Health. Is past president of the Kansas Academy of Family Practice.

First Vice-President

John W. Travis, M.D., Topeka. Born in 1929. Graduated from the Northwestern University School of Medicine in 1955.

Second Vice-President

Ernie J. Chaney, M.D., Belleville. Born in 1927. Graduated from the University of Kansas School of Medicine in 1956.

Richard M. Glover, M.D., Newton. Born in 1921. Graduated from the University of Kansas School of Medicine in 1953. Is now serving as Councilor.

Alex Scott, M.D., Junction City. Born in 1923. Graduated from the University of Wisconsin School of Medicine in 1948. Has served as Councilor.

G. Rex Stone, M.D., Manhattan. Born in 1929. Graduated from the University of Kansas School of Medicine in 1954.

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Has served as Constitutional Secretary.

Constitutional Secretary

Phillip A. Godwin, M.D., Lawrence. Born in 1928. Graduated from the University of Kansas School of Medicine in 1955. Is now serving as Constitutional Secretary.

Treasurer

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Is now serving as Treasurer.

AMA Delegate

Clair C. Conard, M.D., Dodge City. Born in 1927. Graduated from the University of Kansas School of Medicine in 1955. Is now Speaker of the House of Delegates.

Ralph Hale, M.D., Wichita. Born in 1918. Graduated from the University of Kansas School of Medicine in 1946.

James A. McClure, M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1944. Has served as President.

AMA Alternate

John D. Huff, M.D., Kansas City. Born in 1921. Graduated from the University of Kansas School of Medicine in 1952. Is now serving as Councilor.

Lew W. Purinton, M.D., Wichita. Born in 1923. Graduated from the University of Kansas School of Medicine in 1948.

SUPPORT KaMPAC
1973

Resolutions

To Be Introduced at First House of Delegates, May 6, 1973

1973 REFERENCE COMMITTEES

REFERENCE COMMITTEE A
John C. Mitchell, M.D., Salina, *Chairman*
Richard R. Brummett, M.D., Neodesha
Ernest P. Carreau, M.D., Wichita
Jesse L. Spearman, M.D., Topeka
Kermit G. Wedel, M.D., Minneapolis

REFERENCE COMMITTEE B
Warren E. Meyer, M.D., Wichita, *Chairman*
Richard A. Gruendel, M.D., Kansas City
Donald R. Pierce, M.D., Topeka
Ivan E. Rhodes, M.D., Wichita
Eugene T. Siler, M.D., Hays

RESOLUTION NO. 73-1

REFERENCE COMMITTEE A

(Submitted by the Commission for Society Organization)

Kansas Foundation for Medical Care

WHEREAS, Close communication is necessary to maintain the effectiveness of the Kansas Foundation for Medical Care in its relationship to the Kansas Medical Society; therefore be it

Resolved, That the President of the Kansas Foundation for Medical Care shall be a member of the Executive Committee of the Kansas Medical Society serving *ex officio,* without vote unless he concomitantly serves as a regularly elected member of the committee.

RESOLUTION NO. 73-2

REFERENCE COMMITTEE A

(Submitted by the Commission for Health Services)

Alternate Delegate to AMA Meeting

WHEREAS, The large and complex nature of the AMA annual meetings makes it difficult for our delegates to cover all the important sections; and

WHEREAS, The representation of Kansas is small due to its relative population rank; and

WHEREAS, Many sections and reference committees are meeting simultaneously; therefore be it

Resolved, That each county and component medical society be encouraged to send a voluntary alternate delegate to work with the Kansas Medical Society official delegates as silent partners at the AMA meeting; and be it further

Resolved, That these silent partners would be attending section meetings and review committee meetings to inform the regular Kansas Medical Society delegates so that they may give a more informed representation.

RESOLUTION NO. (F-72-26) 73-3

REFERENCE COMMITTEE A

Laboratory Personnel Licensure

WHEREAS, Certification of Laboratories has been established and implemented by many agencies; therefore be it

Resolved, That the Legislative Committee be instructed to follow the concept that state licensure of laboratory personnel is unnecessary.

RESOLUTION NO. (F-72-14) 73-4

REFERENCE COMMITTEE A

(Submitted by the Kansas Society of Pathologists)

Laboratories

WHEREAS, A significant number of laboratory tests are performed in doctors' offices; and

WHEREAS, Quality control methods and proficiency testing of samples of certified concentration are used to monitor the excellence of results in hospital laboratories throughout the country; and

WHEREAS, Such systems are presently available from laboratory specialty societies and reputable manufacturing companies; and

WHEREAS, Laboratory results directly influence the diagnosis and treatment of patients, whether they are performed in doctors' offices or hospital laboratories; therefore be it

Resolved, That the House of Delegates of the Kansas Medical Society recommends the use of quality control methods and the performance of proficiency testing in the doctor's office laboratories as a means of assuring accuracy of results and good quality of medical care.

RESOLUTION NO. 73-5

REFERENCE COMMITTEE A

(Submitted by the Physician's Assistant Committee)

Physician's Assistant Program

WHEREAS, There is a federally funded Physician's Assistant Program in the state of Kansas under the direction of the Kansas State Board of Regents; and

WHEREAS, The Commission for Education of the Kansas Medical Society has given in-depth study of this program and issued a detailed report of the status of such a program in Kansas; and

WHEREAS, The current federal funding for the Physician's Assistant Program is only up through September 30, 1973; therefore be it

Resolved, That the Kansas Medical Society encourage and endorse state or federal funding for the continuation of the Physician's Assistant Program described above.

RESOLUTION NO. 73-6

REFERENCE COMMITTEE A

(Submitted by the Physician's Assistant Committee)

Physician's Assistant

WHEREAS, The Physician's Assistant Program at Wichita State University is now under way as of January 22, 1973; and

WHEREAS, The type "A" Physician's Assistant is defined by the National Academy of Sciences as "(an) assistant (who) is capable of approaching the patient, collecting historical and physical data, organizing these data, and presenting them in such a way that the physician can visualize the medical problem and determine appropriate diagnostic or therapeutic steps. He is also capable of assisting the physician by performing diagnostic and therapeutic procedures and coordinating the roles of other, more technical, assistants. While he functions under the general supervision and responsibility of the physician, he might, under special circumstances and under defined rules, perform without the immediate surveillance of the physician. He is thus distinguished by his ability to integrate and interpret findings on the basis of general medical knowledge and to exercise a degree of independent judgment"; and

WHEREAS, Graduates of the Wichita State University Physician's Assistant program will be issued a certificate for satisfactory completion of the Physician's Assistant program; and

WHEREAS, The Commission for Education has issued its report on the current status of Physician's Assistants in the State of Kansas; therefore, be it

Resolved, That a Physician's Assistant will not be licensed to practice but will provide patient care only under the direction and supervision of a licensed doctor of medicine and surgery, or licensed doctor of osteopathy.

RESOLUTION NO. (F-72-7) 73-7

REFERENCE COMMITTEE A

(Prepared and Submitted by the Commission for Socio-Economics)

Wage and Price Control

WHEREAS, The federal Wage and Price Control regulations are discriminatory to physicians; and

WHEREAS, 1. Doctors' expenses are increasing, 2. Malpractice insurance has doubled in the past few years, 3. Salaries for employees must increase to compete with nonregulated business, 4. Federal regulations under Medicare and Medicaid increase required paper work to where additional employees are needed, 5. Doctors are stagnated from purchasing new equipment or improving their practice techniques; and

WHEREAS, Increasing productivity may well decrease quality; and

WHEREAS, Doctors in increasing numbers are closing their offices and accepting salaried positions; and

WHEREAS, Doctors may establish new fee schedules only if they leave the state and begin practice elsewhere; and

WHEREAS, All the above is to the disadvantage of the patient; therefore be it

Resolved, That the doctor's fees should keep pace with his cost of practicing and with the cost of living; and be it further

Resolved, That this Society requests the Board of Wage and Price Control of HEW to modify the regulations regarding physicians to enable them to stay in practice; and be it further

Resolved, That copies of the letter to the Board of Wage and Price Control and of this resolution also be sent to the President of the United States and to the American Medical Association.

RESOLUTION NO. 73-8

REFERENCE COMMITTEE A

(Submitted by the Commission for Education)

Helpful Information to Medical Students

WHEREAS, Every prospective and active Kansas medical student should be given advice and guidance beginning prior to his or her entrance to the medical school; and

WHEREAS, Such advice and guidance should be actively continued for the duration of his or her professional education; therefore be it

Resolved, That the Kansas Medical Society obtain a list of all Kansas and Greater Kansas City medical students, interns, and residents and send to them a letter-questionnaire similar to the form letter appended; and be it further

Resolved, That the information obtained be appropriately distributed to the local medical societies, state Chamber of Commerce, and the Kansas Department of Economic Development for further action on their part; and be it further

Resolved, That the Kansas Medical Society request that all county medical societies contact guidance councilors and actively participate in "career days" as appropriate; and be it further

Resolved, That the Kansas Medical Society request those county medical societies with small colleges, junior colleges, and similar post-high school institutions in their jurisdictions to contact such institutions and offer their assistance in counseling and guidance regarding the health professions; and be it further

Resolved, That the Kansas Medical Society directly contact larger colleges and universities to offer its assistance and guidance to premedical students in the form of requesting and authorizing specific members to assist these institutions.

FOR MEDICAL STUDENTS, RESIDENTS AND INTERNS
LETTER AND QUESTIONNAIRE

All Kansas Medical Schools, Hospital House Staff, Kansas City, Missouri Medical Schools, and Kansas City, Missouri Hospitals House Staff (first letter at 1st year level and above)

Dear .....

The Kansas Medical Society would like to take this opportunity to welcome you into the medical profession. In order to be of more assistance to you, as well as to promote your interest in staying in Kansas, we would appreciate your filling out and returning the enclosed questionnaire.

1. Are you interested in practicing medicine in Kansas? yes.... no....
2. If so, what area or community in the state? .....
3. Do you intend to specialize? yes.... no....
4. What specialty? .....
5. Are you interested in General or Family Practice? yes.... no....
6. What size community are you interested in?

Below 5,000 .....
5,000-20,000 .....
20,000-50,000 .....
Above 50,000 .....

RESOLUTION NO. 73-9

REFERENCE COMMITTEE A

(Submitted by the Commission for Society Organization)

Medical Economic Seminar

Resolved, That a 1½-day seminar for state and local society officers and interested members be held for the purpose of informing them of items of medical importance outside the scientific aspects of medicine, and that this conference be held in January or February, and that the Society appropriate $2,000 annually to defray the expenses.

RESOLUTION NO. 73-10

REFERENCE COMMITTEE A

(Submitted by the Commission for Education)

New Physicians

WHEREAS, Resolution 72-38 has directed the component society of the area to assist the new physician and his family medically and socially and to acquaint him with health laws, practice requirements, referral opportunities, charging practices, and professional needs; therefore be it

Resolved, That the component society, as early as possible, welcome each new physician to the community, present to the physician the bylaws, explain the society's function and projects, and assist the new physician in understanding the application of the Relative Value Study in the particular medical community; and be it further

Resolved, That the Kansas Medical Society, after being notified by the component society of a new physician, send to that physician the bylaws and state roster, place him or her on the complimentary mailing list (not more than 6 months) for the KMS JOURNAL and news, advise him of the disability and malpractice insurance available, of the educational programs in the state, and other such information as deemed helpful; and be it further

Resolved, That the Kansas Medical Society explore a continuing educational program for the new physician in office management, collection procedures, office equipment, financial direction, and other business-related activities.

RESOLUTION NO. (F-72-23) 73-11

REFERENCE COMMITTEE A

(Submitted by the Commission for Education)

Graduate Medical Education in Kansas

WHEREAS, Three residency training programs in family practice are now established in Kansas—two in Wichita and one at the University of Kansas Medical Center at Kansas City; and

WHEREAS, Such programs represent important steps toward the production of physicians for Kansas and for the nation; and

WHEREAS, There is a great need to encourage young physicians to practice in Kansas; therefore be it

Resolved, That the Kansas Medical Society encourages the directors of the three family practice programs, as well as the directors of all graduate medical education programs in Kansas, to include within the residency training some quality affiliated experience which will acquaint the resident physician with the practice opportunities available throughout the State of Kansas; and be it further

Resolved, That the Kansas Medical Society, through its delegates to the American Medical Association, request the Commission on Medical Education of the AMA to liberalize its guidelines on graduate medical education to permit and to encourage quality affiliated experiences within residency training programs away from the parent program.

RESOLUTION NO. (F-72-9) 73-12

REFERENCE COMMITTEE A

(Introduced by the Commission for Education)

Continuing Education

WHEREAS, Evidence of continuing education is being required for maintenance of membership in an increasing number of professional organizations; and

WHEREAS, Evidence of continuing education is required for continued licensure in at least one state and may in the future be required in others; and

WHEREAS, Verification of the completion of continuing education may be difficult unless there is a formal agency of accreditation; and

WHEREAS, The American Medical Association is the nationally recognized accrediting agency of record; and

WHEREAS, The American Medical Association, because of the burden of accreditation, is able only to accredit national or regional organizations and institutions; and

WHEREAS, The American Medical Association can extend its official accreditation to community-based continuing education only through state medical societies who have developed their own agency of accreditation approved by the Council on Education; therefore be it

Resolved, That the Kansas Medical Society accept the recommendation of its Commission on Education, and direct the formulation of an accrediting procedure for transmission to the American Medical Association with a petition for its approval; and be it further

Resolved, That the bylaws be amended as follows to authorize the creation of an accrediting agency:

9.1241 A committee for the accreditation of community-based postgraduate programs shall be appointed comprised of nine members, each serving a term of three years. At least one member shall be appointed from each of the following geographic areas of the state: north of Highway I-70 and east of Highway 81; south of Highway I-70 and east of Highway 81; north of Highway I-70 and west of Highway 81; and south of Highway I-70 and west of Highway 81. Three members of the committee shall be replaced or reappointed each year. (For the first year of appointment only, three members shall be given a one-year term, three a two-year term, and three a three-year term.); and be it further

Resolved, That the parenthetic expression above shall be automatically deleted from the bylaws after the first year of enactment.

RESOLUTION NO. (F-72-10) 73-13

REFERENCE COMMITTEE A

(Submitted by the Postgraduate Education Committee)

Continuing Education

WHEREAS, Evidence of continuing education is being required for maintenance of membership in an increasing number of professional organizations; and

WHEREAS, Evidence of continuing education is being required for continued licensure in at least one state and may ultimately be required in Kansas; and

WHEREAS, Documentation of the more formal types of continuing education is difficult unless it is given by a formally accredited organization or institution; and

WHEREAS, The American Medical Association is the nationally recognized accrediting agency; and

WHEREAS, The American Medical Association, because of the excessive load, is able only to accredit national and regional organizations and institutions; and

WHEREAS, The American Medical Association can extend this much needed accreditation to community-based continuing education only through state medical societies which have developed an accrediting procedure that has been approved by its Council on Education; therefore be it

Resolved, That the Kansas Medical Society accept the recommendation of the Kansas Medical Society Commission on Education and transmit a model accrediting protocol to the American Medical Association with a petition for its approval.

RESOLUTION NO. 73-14

REFERENCE COMMITTEE A

(Submitted by the Commission for Education)

Postgraduate Education

WHEREAS, It is general knowledge that continued medical education is a necessity to practice good medicine regardless of the specialty; and

WHEREAS, The Commission for Education of the Kansas Medical Society has studied these needs and has recommended that certain postgraduate requirements be met as a requisite to membership in the Kansas Medical Society; therefore be it

Resolved, That the postgraduate study requirements as adopted by the Commission for Education of the Kansas Medical Society be adopted by the Kansas Medical Society as a requirement for continued membership in the Kansas Medical Society.

A. Requirements—150 hours of postgraduate medical education shall be completed by each member every three years as a requisite in continuing membership in the Kansas Medical Society.

1. Accredited education

a. A minimum of 50 hours must be in accredited postgraduate education, such as specialty scientific meetings, medical school sponsored programs, courses approved by AAFP, etc.

b. There will be no limit on credit given for this category, *i.e.,* all 150 hours could be from accredited courses

c. Courses must be approved by the permanent committee appointed by the Commission for Education

d. Credit shall be given on an hour for hour basis.

2. Non-accredited education

a. 100 hours may be non-accredited education such as: (1) Journal reading, (2) Audio digests, (3) Hospital staff meetings, (4) Informal teaching, (5) Publication of papers in recognized professional journals (10 hours credit each), (6) Scientific meetings of state medical society, AMA, and specialty groups.

b. Credit for this category shall be approved by the permanent supervising committee.

B. Administration

1. This program will be under the over-all supervision of the permanent committee

2. Appropriate clerical assistance will be provided in the KMS office

3. The program should be arranged so that one third of the members would meet the requirement each year

4. The requirement for new members shall begin on January 1 of the year following admission to the KMS

5. Requirements shall be on a calendar year basis

6. The individual members shall be responsible for reporting their postgraduate education

7. Appropriate forms shall be furnished by the KMS on a yearly basis

8. Members not meeting requirements shall be notified six months prior to the end of their three-year period

9. Appeals may be made to the KMS Commission for Education.

C. Exemptions

1. Honorary members of county medical societies

2. Members retired from active practice

3. Members in approved residency training programs

4. Special exemptions may be made for long periods of illness

5. Other special exemptions may be granted by the special committee upon application by individual members.

RESOLUTION NO. 73-15

REFERENCE COMMITTEE A

(Submitted by the Commission for Education)

Continuing Education

WHEREAS, The Kansas Medical Society has been asked by the American Medical Association to evaluate continuing medical education programs in this state, therefore be it

Resolved, That the following outline is approved by the Society.

PROPOSED KANSAS MEDICAL SOCIETY STANDARDS FOR ACCREDITATION FOR CONTINUING MEDICAL EDUCATION ACTIVITIES IN MEDICAL INSTITUTIONS AND ORGANIZATIONS

I. Institutional Commitment

The following areas are important aspects of commitment to improving patient care through continuing medical education.

a) Explicit support of continuing medical education by the governing body, organized medical staff and administration.

b) Provision of facilities for continuing medical education of the attending staff as evidence of such support.

c) A continuing medical education committee, having cross-membership with patient-care review committees and including a wide range of subspecialty and departmental representation.

d) A responsible Director of Continuing Education or Continuing Education Committee Chairman with supporting staff, including availability and use of expert knowledge of educational methods, wherever possible.

e) Coordination and cooperation with other education programs in the area, in sharing resources, and *evidence of efforts to meet the educational needs of physicians in the community.*

II. Program Development

a) *The Assessment of Needs* as developed through quality of patient care review mechanisms.

b) *Clearly Defined Objectives* for each educational activity based on the assessment of needs.

c) *Planned Learning Experiences,* designed to bring about these specific objectives, selecting the most effective educational methods for the particular need, whether knowledge, skills, attitudes, or performance-behaviors are to be changed.

d) *Evaluation* of each individual educational activity, and of the entire continuing education program of the medical organization, in terms of impact on the quality of patient care, through review procedures similar to those followed in assessing needs.

INTRODUCTION

The purpose of this publication is to help the medical staffs of medical institutions and organizations develop effective continuing medical education. The concept of a "Lifetime of Learning" has become an accepted fact for the practicing physician. The American Medical Association has undertaken a program of certification for the completion of minimum requirements of continuing medical education in an effort to implement this concept. In spite of a vast array of courses currently available, it is apparent that new approaches will be required to meet the demand. The KMS has recommended that each medical institution and organization establish an education committee and that the effectiveness of the educational effort be evaluated by a review of the quality of medical care to detect changes in medical staff performance.

The Kansas Medical Society will survey and accredit continuing medical education activities in medical institutions and organizations. Arrangements are being made with the American Medical Association for reciprocity of such accreditation procedures to avoid duplication. For medical institutions and organizations seeking accreditation of their continuing medical education activities, the principles described in this document should be considered generally applicable and as a general statement of criteria to be used by the survey teams in evaluating the quality of the educational effort. These are flexible and will be reviewed periodically.

OBJECTIVES

The ultimate aim of continuing medical education is improvement of the health and well-being of the individual patient and of the public. This may be accomplished by bringing about:

1. Changes in the attitudes of physicians.
2. Correction of outdated knowledge.
3. Introduction of new knowledge.
4. Mastery of specific skills and techniques.
5. Improvement in the performance of physicians.

It is assumed that the accomplishment of these measurable objectives will alter the physician-learner's habits in a favorable direction which can be evaluated by a systematic assessment of the quality of medical care provided within medical institutions and organizations.

Each medical staff should develop empiric evidence of educational needs through internal self-evaluation of the quality of medical care. This will allow a clear statement of the specific objectives of the educational program and permit evaluation of its effectiveness. Imaginative and innovative techniques to accomplish these objectives should be encouraged.

BASIC PRINCIPLES FOR CONTINUING EDUCATION ACTIVITIES

1. *Administration:* There should be administration of continuing education by a responsible person having the respect and support of the medical staff

and hospital administration; the goal should be a program in the highest interest of the public and the medical profession. There must be continuity of administration, advanced planning, evaluation, and feedback from physician-learners and teachers. This cannot be accomplished by the appointment or election of the Chairman of the Educational Committee on a yearly basis as is commonly done by the medical staffs of medical institutions and organizations. Larger institutions should employ a physician, either full or part-time, as director of medical education or director of continuing education because the burdens of this position can become too great to be carried by a volunteer member of the medical staff. Cooperative arrangements could be made by smaller institutions on a regional basis to share such leadership.

The Chairman of the Continuing Medical Education Committee, Director of Medical Education, or Director of Continuing Education, should be charged with the following responsibilities:

a. Determine the specific needs of the medical staff as developed by systematic assessment of the quality of medical care conducted by the tissue, audit, utilization, and records committee or by a special "Educational Audit" committee.

b. Provide clear statements of the objectives of specific educational activities.

c. Plan activities well in advance.

d. Encourage involvement of all members of the medical staff throughout the educational process by enlisting their help in the determination of needs, the development of objectives, implementation, teaching, learning, and evaluation.

e. Insure that study areas, audio-visual aids, and self-instructional aids are available.

f. Publicize the continuing medical education effort to the medical staff and to the general public.

g. Supervise enrollment records.

h. Coordinate educational activities for physicians with programs for paramedical personnel.

i. Coordinate educational activities with other programs of continuing medical education.

j. Develop strong working relationships with continuing medical education departments of nearby medical schools.

k. Plan for evaluation of the effectiveness of the program to see if the objectives are being accomplished.

1. Encourage the provision of adequate library facilities and services.

2. *Budget:* The budget should be adequate for the educational activities and for their continued improvement. Sole dependence upon tuition fees may restrict the quality, breadth, and depth of the educational program. Support for these activities may be sought from medical staff dues, hospital general funds, medical schools, federal funds, existing charitable foundations, or by the development of new hospital research and education foundations.

3. *Teaching Staff:* The teaching staff should consist of the physician members of the hospital medical staff dedicated to the development of carefully planned educational activities. Frequently, it will be desirable to enlist teachers from other hospitals and medical schools in the region, although the main body of teaching must come from within the community. There must be an adequate number of teachers capable of explaining the basic mechanisms of disease and their clinical applications in prevention, diagnosis, and treatment. Not all physicians are good teachers, but all teachers can be improved through helpful criticism of their efforts by physician-learners. Those medical institutions and organizations with intern and residency programs should have a nucleus of a faculty that can be expanded to meet the demands of a solid continuing medical education program. In order that each medical institution and organization may obtain necessary academic backup for their programs of continuing education, it is suggested that cooperation with medical schools be established. It is hoped that it will be possible for medical schools to develop approaches which will significantly aid medical institutions and organizations that wish to become intramural teaching centers.

4. *Curriculum:* The curriculum of any continuing medical education activity: (a) Should be designed to achieve specific objectives, (b) Should be well-planned in advance, and (c) Should include appropriate methods of evaluation.

Thoughtful planning requires that the content of the educational activities be based upon the demonstrated needs of the learners and relevant to their work within the institution. The means of establishing needs may vary, but must be more than a popularity poll. Newer knowledge of the basic mechanisms of disease and treatment should be an integral part of the program along with more practical information. The curriculum should be coordinated with other institutions to avoid duplication and encourage adequate coverage.

5. *Facilities:* There should be facilities available that encourage participative methods of education. Though lectures are means whereby physicians obtain information, it is felt that this method of education alone cannot provide an adequate continuing education program in the context of modern education. The facilities when appropriate to the content of the program, should include the availability of patients and their case records and other necessary

records such as roentgenograms, electrocardiograms, surgical pathology tissues or reports, laboratories, library, adequate conference rooms, and audio-visual aids.

6. *Educational Methods:* The educational methods should include more than a series of lectures or panel discussions in which the physicians are primarily passive recipients. Methods requiring active participation include live clinics and bedside rounds, seminars, open question periods, laboratory work, and the study of patients under supervision.

There is ample evidence in the undergraduate and graduate phases of medical education that overemphasis on purely didactic methods resulting in less learning than one requiring active participation.

It should be noted that any potentially active methods of education, such as ward rounds, can become a purely passive exercise if a group is too large; *e.g.,* bedside groups of six to eight physicians would be likely to encourage participation of each, while bedside groups of more than ten might easily consist of "standing lectures."

Strictly as aids to education rather than as the sole method, the use of slides, motion pictures, and television is encouraged. In the case of home study courses, the use of audio-visual kits may be of value. Such tools as television and videotape have valuable and even unique potentialities when their usefulness is appreciated as means rather than as ends.

When lectures are utilized, it is helpful also to conduct group discussions and question-and-answer sessions as follow-through techniques. Similarly, though appropriate audio-visual aids are of assistance, they should be simply a part of, and integrated into, a planned educational activity. Catalogues containing lists of suitable motion pictures and their sources are available from the Director, Television and Motion Picture Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

The patients of physicians on the attending staff of medical institutions and organizations can be utilized in a program of continuing medical education if other facilities and a teaching staff are provided, perhaps in part by cooperative arrangements between the regional hospitals and medical schools. Such education, if carefully planned and enthusiastically put into effect by the attending staff of the medical institutions and organizations, would be more truly continuous education and thus more valuable than is likely to be the effect of sporadic study in formal courses. Community hospital-medical schools cooperative efforts are desirable to meet the overall needs of the profession.

7. *Methods of Evaluation:* Methods of evaluating the effectiveness of continuing education activities should be developed. Without an initial statement of specific objectives for each activity, it is difficult, if not impossible, to ascertain in any meaningful way whether such objectives have been fulfilled. Yet, evaluation of each program and its students' achievements, both immediate and long-range, is essential.

Experiments directed toward better ways of accomplishing such evaluation are encouraged. Since the goal of all these efforts is better patient care, each medical institution and organization should try to ascertain whether the educational program has in fact improved the quality of medical care. The systematic evaluation of the quality of medical care has excellent educational possibilities when conducted as "educational audit."

8. *Physician's Reward:* Each physician's reward for participation in continuing medical education should be his improved ability to care for his patients and the stimulation of his own spirit of intellectual adventure.

Any certificate granted at the completion of a continuing education program or series of programs should not be, nor resemble, a diploma attesting to special skill, nor be reasonably susceptible to such interpretation. Continuing medical education is not intended to provide an educational experience adequate for beginning the practice of a specialty or subspecialty—that is the concern of graduate medical education, i.e., residency and fellowship training. Therefore, it would be inappropriate for any document attesting to contributing education study to be subject to misinterpretation.

The American Medical Association has established certification for physicians who have completed certain minimum requirements of continuing medical education. It is hoped that many medical institutions and organizations in Kansas will develop activities that may be accredited so that their medical staff members can obtain much of their education in their own hospital.

SUMMARY

These guiding principles were developed to:

1. Assist medical staffs of medical institutions and organizations in the production of continuing medical education activities.

2. Improve the educational worth and relevance of continuing medical education activities.

3. Outline mechanisms for evaluating the effectiveness of continuing medical education.

4. Provide a basis for the accreditation of continuing medical education activities in medical institutions and organizations.

5. Outline a plan for the Kansas Medical Society hospital medical survey teams to use in exam-

ining the approach of each medical institution and organization medical staff to continuing medical education.

The basic principles of continuing medical education are the same as are those of undergraduate or graduate medical education. An effective program requires leadership, careful planning, suitable facilities, and competent teachers, who use dynamic methods of education that enlist the participation of the student. Appropriate means of evaluation should be devised to permit some measure of the program's effectiveness.

RESOLUTION NO. 73-16

REFERENCE COMMITTEE B

(Submitted by the Commission for Health Services)

Woman's Auxiliary

Resolved, That a vote of appreciation to Auxiliary for their part in the Health Education Bus and an exhortation to continue their excellent effort in the future be given.

RESOLUTION NO. 73-17

REFERENCE COMMITTEE B

(Submitted by the Commission for Health Services)

House of Delegates

Resolved, That a member of the legislature or the Governor be asked to attend the first House of Delegates meeting and to deliver appropriate comments.

RESOLUTION NO. (F-72-2) 73-18

REFERENCE COMMITTEE B

(Submitted by the Council)

Society Membership

WHEREAS, Two physicians practicing within the jurisdiction of the Flint Hills District Component Society have refused to pay their AMA dues but have repeatedly attempted to retain their membership in the Kansas Medical Society; therefore be it

Resolved, That these two physicians be permitted to rejoin the Society by paying their delinquent Kansas Medical Society dues but that they be forgiven their delinquent AMA dues.

RESOLUTION NO. 73-19

REFERENCE COMMITTEE B

(Submitted by the Commission for Health Services)

Specialty Societies

WHEREAS, In the Bylaws of the Kansas Medical Society 5.22, Organized Specialties, 14 specialty societies plus Dermatology as a planned 15th such society are entitled to one delegate and one alternate each; and

WHEREAS, In the past, such societies' interests have been inadequately and sporadically represented; therefore be it

Resolved, That the Kansas Medical Society requests each such specialty society to elect a delegate and alternate and to expect them to be present at each meeting of the House of Delegates and at such Reference Committee meetings as they deem appropriate; and be it further

Resolved, That the Kansas Medical Society requests the specialty societies to channel such actions through the Executive Office of the Kansas Medical Society for purposes of information and endorsement; and be it further

Resolved, That where actions of the Kansas Medical Society involve concerns of a specialty society, consultation with such society be sought prior to state society action.

RESOLUTION NO. 73-20

REFERENCE COMMITTEE B

(Submitted by the Commission for Society Organization)

Roster Listings

Resolved, That the Roster be amended to include board certification, specialty training, and specialty organization other than board certification attesting to clinical competence.

RESOLUTION NO. (F-72-5) 73-21

REFERENCE COMMITTEE B

(Submitted by the Executive Committee)

Rubella and Measles Project

WHEREAS, The National Center for Voluntary Action, sponsored by HEW and the National Communicable Disease Control Center, proposes to establish in every state a corps of volunteers to encourage

parents to have their children immunized against rubella and measles; and

WHEREAS, A representative came first to the Kansas Medical Society for endorsement before proceeding further in Kansas; therefore be it

Resolved, That the Kansas Medical Society endorse this project and recommend that the county chairman contact the county medical society for advice on how the project should operate locally.

RESOLUTION NO. (F-72-13) 73-22

REFERENCE COMMITTEE B

(Submitted by the Committee on Venereal Disease)

Veneral Disease

WHEREAS, It is acknowledged that the spread of venereal disease has accelerated; and

WHEREAS, Medical science has not uncovered the ultimate cure for these diseases; and

WHEREAS, City and county health departments, because of burdensome manpower-case load ratios, cannot solely be responsible for the control of venereal disease; and

WHEREAS, Practicing physicians have not demonstrated sufficient flexibility nor accountability in responding to this community problem; and

WHEREAS, The most accessible and often the first medical contact made by individuals with apparent venereal disorders is the outpatient clinic or emergency room; therefore be it

Resolved, That acute or overt venereal disease be considered a true emergency of an epidemic nature and that all barriers to treatment in these facilities, whether they be administrative, statutory, socio-economic or cultural, be rescinded or ameliorated; and be it further

Resolved, That material of an informative and educational nature be properly disseminated from these facilities to the community regarding affirmative action by each and any facility undertaking ambulatory outpatient or emergency treatment whether public or private, profit or nonprofit.

RESOLUTION NO. 73-23

REFERENCE COMMITTEE B

(Submitted by the Commission for Health Services)

Nursing Homes

WHEREAS, Mr. William Newman replaces Mr. Ernest Kieswetter in the State Department of Social Welfare under the direction of Dr. Robert Harder; and

WHEREAS, Mr. A. W. Schnellbacher is in charge of nursing homes under Mr. Newman; and

WHEREAS, The Welfare Department wants to send a team of one nurse and one social worker to visit all welfare and Medicare clients in nursing homes in any category and review records to determine whether or not such clients are properly classified as to skilled, intermediate I, intermediate II, or boarding care; and

WHEREAS, Welfare further wants each component medical society to review the reports with this team by designating members of that component society; and

WHEREAS, Mr. Newman and Mr. Schnellbacher want to visit with each component society to explain their visits; therefore be it

Resolved, That the Kansas Medical Society endorses this program and urges the cooperation of component societies.

RESOLUTION NO. (F-72-25) 73-24

REFERENCE COMMITTEE B

Emergency Medicine

WHEREAS, All physicians have a need to receive training in certain emergency life-saving procedures; and

WHEREAS, All physicians would benefit from well planned educational programs in emergency care; and

WHEREAS, There is a dramatic upsurge in interest in the field of emergency medicine by medical students and young house staff; and

WHEREAS, Numerous physicians are presently limiting their practice to emergency medicine; and

WHEREAS, The American Medical Association itself has recognized the need for special attention to this subject by establishing the Commission on Emergency Medical Services, the Committee on Community Emergency Medical. Services, and the Task Force on Hospital Emergency Department Services; and

WHEREAS, Efforts to provide members of the AMA with educational programs in emergency medicine have in the past been necessarily a combined effort of several AMA sections; and

WHEREAS, The annual meeting of the AMA would provide an ideal time to reach the greatest number of physicians; therefore be it

Resolved, That a Section on Emergency Medicine be established for the purpose of coordinating educational programs for all practicing physicians.

RESOLUTION NO. 73-25

REFERENCE COMMITTEE B

(Submitted by the Commission for Education)

Sex Counselling

WHEREAS, There are a rising number of teenage pregnancies both married and unmarried; and

WHEREAS, Many of these pregnancies are unplanned and unwanted and result in an increased number of abortions or increase in battered children and negligence; and

WHEREAS, Sexually active minors desiring to prevent conception are denied access to such services unless they have parental consent; and

WHEREAS, Kansas has set a precedent for providing services to minors without parental consent for venereal disease, drug abuse, and pregnancy; therefore be it

Resolved, That family planning information, counselling, and services be provided to all sexually active minors, regardless of sex or marital status, desiring such services, without parental consent—and providing immunity from civil or criminal liability to the physician providing such services—and to those choosing not to provide the service, except where gross negligence or omission occurs.

RESOLUTION NO. 73-26

REFERENCE COMMITTEE B

(Submitted by the Commission for Sociology and Economics)

Medical Information Reports

Resolved, That the Kansas Medical Society modify its policy relative to supplying medical information reports to third parties to read as follows: "With increased payment for medical care by third parties, increased time is required by physicians in preparing reports. The Kansas Medical Society establishes a policy that the preparation of a single brief report on a well recognized form, such as the form adopted by the Health Insurance Council or Kansas Blue Shield, is a service to the patient and *may* be completed by the physician within the charge made for the procedure or service involved, *or may be provided at an additional charge to the patient.* Wherever reports on other specified forms, not in general use, or reports of extended length are required, this is considered by the Kansas Medical Society to be for the convenience of the third party and the physician may make an additional charge for this extra service. Requests for additional medical evidence by third party on behalf of the first party need not be honored by the attending physician unless accompanied by a sight draft, voucher, or request for submission of a statement for their usual and customary fee for service. Item 9032 in the 1966 Relative Value Schedule has been inserted to cover such situations.

RESOLUTION NO. 73-27

REFERENCE COMMITTEE B

(Submitted by the Commission for Sociology and Economics)

Medical Reports

WHEREAS, The Kansas Medical Society has established a policy that the preparation of a single brief report on a well-recognized form, such as the form adopted by the Health Insurance Council or Kansas Blue Shield, is a service to the patient and will be completed by the physician within the charge made for the procedure or service involved; and

WHEREAS, Wherever subsequent reports of extended length or reports on specified forms not in general use are required, this is considered by the Kansas Medical Society to be for the convenience of the third party and the physician may make an additional charge for this extra service; therefore be it

Resolved, That the Kansas Medical Society reaffirm its action relating to appropriate payment to the physician for supplemental reports to insurance carriers or government agencies; and be it further

Resolved, That a copy of this resolution be sent to the American Medical Association and the Kansas delegates be instructed to press for adoption of a similar resolution by the American Medical Association.

RESOLUTION NO. (F-72-8) 73-28

REFERENCE COMMITTEE B

(Prepared and Submitted by the Commission for Socio-Economics)

Workman's Compensation

WHEREAS, Kansas law requires the employer to provide medical care to injured workmen; and

WHEREAS, Some insurance companies are discriminatory through their practice of selecting specific physicians for use in Workman's Compensation cases; therefore be it

Resolved, That the larger component societies prepare a list of physicians who are willing to perform care for injured workmen and submit these to the principal employers in their area; and be it further

Resolved, That this Society inform the major in-

surance companies writing Workman's Compensation protection that lists of qualified physicians who will accept Workman's Compensation cases are available, and that it is the position of this Society that, wherever practical, the injured workman should select the physician of his choice.

RESOLUTION NO. (F-72-15) 73-29

REFERENCE COMMITTEE B

(Submitted by the Kansas Radiological Society)

Kansas Blue Cross-Blue Shield Underwriting Responsibilities

WHEREAS, Kansas Blue Shield (formerly Kansas Physicians Service) was organized, chartered, and established for the still valid primary and specific purpose to underwrite on behalf of subscribers the charges made for services furnished personally by or under the direct supervision of participating physicians; and

WHEREAS, Kansas Blue Cross (formerly Kansas Hospital Service Corporation) was organized, chartered, and established for the still valid primary and specific purpose of underwriting on behalf of subscribers the costs of non-physician services furnished by member hospitals as defined by the Plan; and

WHEREAS, Third-party recognition of this important distinction between the personal services of physicians to individual patients—no matter where they are performed or through what agency they are billed for—and non-physician services furnished by institutions provide strong and essential support for continued professional independence and integrity of the medical profession in Kansas; and

WHEREAS, The distinct identification of each and every service performed by physicians for subscribers is essential to meaningful peer review of the quality and utilization of services rendered both in and out of hospitals and such identification is required under Blue Shield but not under Blue Cross; therefore be it

Resolved, That the Kansas Medical Society strongly urge the Boards of Directors of Kansas Blue Shield and Kansas Blue Cross to underwrite in Blue Shield contracts and pay for from Blue Shield funds all physician services which are capable of identification,* including the "professional component" of those services performed by physicians in a hospital setting which might be billed for by the hospital on behalf of a physician under a salary or contract arrangement; and be it further

Resolved, That such payment by Blue Shield for specifically identified services to subscribers by physicians who choose to bill through hospitals should be subject to established rules under the "prevailing charge" program as they are presently applied to physicians who bill independently for professional services rendered in hospitals; and be it further

Resolved, That Blue Shield should underwrite the professional component of contract practice arrangement (*e.g.,* HMOs, etc.) ; and be it further

Resolved, That the Kansas Medical Society strongly supports the continuing efforts of Kansas Blue Cross in cooperation with the Kansas Hospital Association to effect improvements in the definition, analysis, and reimbursement of non-physician hospital costs.

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* This resolution is submitted with the knowledge and understanding that Kansas Blue Cross-Blue Shield has the full capability to recognize and effect correction of any present deviation from the return to basic policy and concept embodied in this proposal.

RESOLUTION NO. (F-72-27) 73-30

REFERENCE COMMITTEE B

Reimbursement of Participating and Non-Participating Physicians

WHEREAS, The patient pays a standardized premium for health insurance for specific services covered; and

WHEREAS, Free choice of physician is an accepted right and privilege of patients; and

WHEREAS, Blue Shield has established a range maximum fee for service on a usual and customary basis; and

WHEREAS, Blue Shield discriminates between payment to Kansas participating and non-participating physicians, paying up to range maximum for participating physicians' services, but only the statewide average for non-participating physicians' services regardless of location, special training, or other circumstances; and

WHEREAS, Blue Shield discriminates between non-participating physicians and out-of-state physicians, paying up to range maximum to out-of-state physicians for covered services, but only state-wide average for non-participating physicians; and

WHEREAS, Blue Shield policies cause patients to be billed for fee differences above the allowed averages on charges by non-participating physicians, thus raising the cost of medical fee coverage to those patients; and

WHEREAS, Blue Shield further discriminates against non-participating physicians by intimating to these same patients that their non-participating physician is overcharging; and

WHEREAS, This discriminatory policy is not uniformly applied in that there are several large subscriber groups in Kansas where no payment differ-

ential is made between participating and non-participating physicians; therefore be it

Resolved, That the Kansas Medical Society condemn the Blue Shield practice of discrimination against physicians and their fees because of their participation status; and be it further

Resolved, That the Kansas Medical Society encourage the Kansas Insurance Commission to investigate and attempt to clarify this discriminatory practice in the field of health insurance.

RESOLUTION NO. (F-72-16) 73-31

REFERENCE COMMITTEE B

(Submitted by the Kansas Radiological Society)

Physicians' Services

Resolved, That it is the position of the Kansas Medical Society that all statements by institutions, including hospitals, for services which embrace or include professional services rendered by physicians shall identify by name the physician, or physicians, responsible for that service.

Report of the Committee to Study HMOs
Evan R. Williams, M.D., Chairman

To: The House of Delegates

Your committee, appointed to implement Resolution 72-17 which requested a study of the subject of HMOs including the effectiveness of HMOs currently in existence, begs to make the following report.

An enormous volume of literature on the subject of Health Maintenance Organizations has been examined. Various members of the committee have personally visited existing HMOs and observed their operation. Some have attended national conferences on HMOs.

In truth, a great many questions exist and there are very few answers. Depending upon who you believe, the HMO is the salvation of the health care crisis in America, or there is no actual health care crisis. It would be futile to repeat the innumerable arguments that favor and that fear the HMO. It would be equally futile at this time to support or condemn the concept.

In support of the above, may we cite that officials of the Kaiser Permanente Program can demonstrate a cost saving through reduced hospitalization when compared with the non-enrolled community. Statisticians, however, declare there is no present means to accurately evaluate the effectiveness of health care. Only quality of care rendered can be evaluated. Another unknown revolves around public education as to the proper seeking of health services. This is much more easily accomplished through employee groups than by the population at large. State laws report another variable. In some states they are declared insurance companies and required to comply with all insurance laws. In other states they are exempt. Operational costs, the use of paramedical persons, contracts with hospitals, and a great many additional questions are still unresolved. Therefore, we cannot at this time, and neither can anyone, declare that an HMO will deliver the same quality of care at a lesser cost than services rendered under the present system. The only immediately apparent savings arrived through an HMO is in the reduction of hospitalization.

Effective control of unnecessary hospitalization can be obtained through conscientious effort by utilization and peer review committees as performed under a Foundation for medical care. An HMO has the potential for closer control of the physician but if the emphasis is on prevention, this too can increase the cost and is no assurance of savings. If the emphasis is on out-of-hospital services such as minor surgery, there is an increased risk. The question then remains as to whether further reduction of hospitalization is, in fact, sound.

The predictable cost through prepayment is an argument favoring the HMO, except such prediction could be made available through any insurance company and is dependent only upon the confidence such company places upon the medical profession. If utilization review and peer review are operated as effectively outside an HMO as they are within, there then remains but one plus factor for the HMO. This is the incentive for the physician and, as implied above, that could approach a point of risk to the patient. Your committee makes the following recommendations in the hope that the House will again express itself on these points.

1. Health Care in the United States is of high quality. Its availability is being improved. Therefore, everything that is good about the present system of the delivery of health care should be preserved, and the Society should cooperate toward improving it.

2. The Kansas Medical Society favors experimentation in the delivery of health care, and welcomes every individual or group effort in this regard that has the approval of the component society before the plan is initiated.

3. The committee begs leave to continue its exploration and will report to the appropriate congressional committee when another bill on HMOs is introduced to the next session of the Congress.

Woman's Auxiliary

. . . *Annie goes to Spain with the KMS*

Take a tall glass of Sangria, the colorful local cocktail, a half-hundred doctors, most of whom know each other, an exhilarating Samba band, a tropical hotel setting, good food and excellent wine and, presto, you have the atmosphere Annie and her friends enjoyed for a week in February.

Winging our way eastward we had landed in Málaga, Spain, on the "Costa del Sol," which means the Coast of the Sun. And the sun beamed on us all week long, from the day we landed until the last morning when our departure turned the once-balmy skies to a lonesome gray . . . anticipating our departure, no doubt.

Imagine, if you will, the gleeful fracturing of the local idiom. Cars went "el cruncho" if they collided inadvertently, and the Spanish currency pesetas (pronounced pay-say-tahs) immediately became "potatoes" to our happy holiday-ers. Incomparable wines, near-French cuisine, and a nightly orchestra made a gala atmosphere for the whole group. Everyone, from tots to tottering grandparents, tried their luck with the irresistible Spanish dance music.

It was a perfect trip. You could go on totally structured tours, or on your own. Either way was pleasant, and many chose to do some of each. Daily tours to nearby (well, fairly nearby . . . after all, it takes all day to go 60 miles and back through those Spanish mountains) places of interest could be purchased or not, as one chose.

Some people took the two-day flight to Granada and Seville, where they toured the palatial city of the Alhambra built by the Nazarite kings in 1238, the Alcazaba watchtower, and the cathedral. It's a real thrill to stand in the room where Queen Isabella commissioned Columbus to go to America, believe me. Roman ruins lured them in Seville.

Others flew to Tangiers, Morocco, for a day. Here they rode camels, visited the old walled city of the Casbah, and watched a snake charmer woo his wobbly wares. The *very* hardy let the Moroccan magician place "el snako" around their necks for a quick photograph. But not Annie. She prefers Coty or Chanel, not Cobra, behind her ears.

If you didn't choose to take tours to Ronda, Granada or other near-coastal cities, you could rent a car and go on your own steam. Annie and her pals rented a foxy little English Austin which buzzed happily up the narrow mountain roads, around hairpin curves and steep inclines which led to dazzling white villages, every house with a red tile roof. Wine, bread, and a hunk of cheese comprised our lunches those days. We ate these by the side of the road on the edge of olive groves or grape-vined terraces climbing the steep hillsides, or on the shore of the Mediterranean where the waves rolled and receded musically until one really didn't need wine to be intoxicated. The sound of the surf alone would have sufficed.

Travel wasn't the only entertainment. One beautiful balmy day took us on a donkey trail trip up the side of a mountain to a village named Tolox. After we had urged our somewhat stubborn, but sturdy, mounts to the top of the hill, we were treated to an excellent meal of barbequed chicken, salad, and wine. Afterwards, we picked oranges and tangerines from the orchard adjoining the spot, then rode our burly burros back through town, much to the amusement of the natives.

Bullfights and nightclub tours were available too, if you had the strength. Flaminco dancers abounded and most clubs have excellent vaudeville acts. If you were weary of travel and shopping (and Dios Mio, what shopping there is . . . most bank accounts were fractured along with Franco's phraseology) there was always the hotel pool and beach. Palm leaf umbrella "hats" shaded comfortable loungers by the pool. Below the cliff was the beach where bikinis abounded, cameras clicked, and winter-weary skins took on a new look.

For one glorious week the world stopped. That fellow Omar Khayyam had something when he said "Here with a loaf of bread beneath the bough, a flask of wine, a book of verse and thou. . . ."

Annie is sure he must have been talking about Spain.

Hasta la vista

Auxiliary Annie

KMS Obituaries

JAMES T. HAMILTON, M.D.

Dr. James T. Hamilton, of Wichita, died February 12, 1973 at the age of 58. He was born on January 29, 1915, in Derby.

Dr. Hamilton was graduated from the University of Kansas School of Medicine in 1951.

Surviving Dr. Hamilton is his wife.

FRED R. ISAACS, M.D.

Dr. Fred R. Isaacs, 73, of Lawrence, died January 12, 1973. He was born January 31, 1899, in Downing, Missouri.

Dr. Isaacs was graduated from the Rush Medical College, Chicago, in 1930.

Survivors include a daughter and a son.

WILLIAM A. LOVE, M.D.

Dr. William A. Love, 84, of Kansas City, Kansas, died December 31, 1972. He was born October 10, 1888 in West River, Maryland.

Dr. Love was graduated from the Howard University Medical School in 1914.

Surviving Dr. Love is his wife.

DELANO I. MAGGARD, M.D.

Dr. Delano I. Maggard, 96, of Wichita, died February 6, 1973. He was born March 5, 1877 in Memphis, Missouri.

Dr. Maggard was graduated from the Northwestern University School of Medicine in 1903. He practiced EENT in Wichita for 63 years.

Surviving Dr. Maggard is his wife.

JERRY H. McNICKLE, M.D.

Dr. Jerry H. McNickle, 67, of Ashland, died February 14, 1973. He was born November 20, 1915.

Dr. McNickle was graduated from the Jefferson Medical School, Philadelphia, in 1941.

Survivors include his wife and four sons.

CORONARY ARTERY BYPASS SURGERY

The National Heart and Lung Institute's (NHLI) Clinical Cardiac Disease Branch is currently inviting contract proposals for a series of carefully controlled studies to evaluate the effectiveness of coronary artery bypass surgery for improving the blood supply to blood-deprived (ischemic) areas of heart muscle and for relieving angina pectoris and other clinical manifestations of coronary artery disease. Proposals are also being invited for a Coordinating Center to collect and process data emanating from the clinical trials.

Coronary artery disease usually results from the gradual buildup of fatty deposits in the inner lining of the coronary arteries that nourish the heart muscle itself. These deposits impede bloodflow to those areas of heart muscle supplied by affected arteries. If coronary blood flow is seriously reduced by such deposits, the patient may experience the crushing chest pain of angina pectoris whenever the blood supply is inadequate to meet the heart's requirements for oxygen or other nutrients. Most patients with angina pectoris experience chest pain during exertion; but, if coronary artery disease is very severe, pain may be triggered by cold exposure, strong emotions, or the mildest exercise, and may even occur at rest or during sleep.

A surgical procedure that has shown promise in the relief of angina pectoris and certain other manifestations of ischemic heart disease is coronary artery bypass to detour blood around coronary artery obstructions. In many patients, such obstructions are confined to relatively short segments of the affected coronary artery or branch, often near its origin, the remainder of the vessel being healthy. In this procedure, one or more segments of saphenous vein are removed from the patient's leg at time of operation. One end of the graft is spliced end-to-side into the aorta, the other end spliced in similar fashion into the diseased coronary vessel just "downstream" from the site of obstruction. An alternative procedure involves freeing one end of the left or right internal mammary arteries (which normally supply blood to the chest wall) and splicing it into a diseased coronary vessel to bypass obstructions.

An estimated 20,000 coronary bypass operations were done in 1971, many of them involving multiple grafts. The improvement in bloodflow to the heart is immediate and the short-term effects have often been dramatic: most patients experienced relief from episodes of chest pain and substantial improvement in exercise tolerance. In some instances, the procedure has been used on an emergency basis (and with limited success) to salvage blood deprived areas of heart muscle in heart attack patients suffering from acute heart failure or shock.

Because of the recent upsurge in enthusiasm for this procedure and the limited information on its long-term effectiveness, NHLI earlier this year established a Policy Advisory Board to draw up recommendations for studies to evaluate coronary artery bypass surgery in relation to more conservative medical management of coronary heart disease. The proposed studies are being initiated in response to recommendations of this Board.

The proposed studies will be carried out in two phases. Phase I will involve the development of detailed protocol for collaborative studies comparing coronary artery bypass with medical management in sharply defined groups of patients. The definitive studies in Phase II will be undertaken after approval of the collaborative protocols. Among the goals of these studies are the following:

To determine whether and to what extent clinical improvement, often noted immediately after coronary bypass surgery, persists over the years;

To ascertain whether bypass procedures reduce the threat of acute heart attacks or improve long-term survival among patients with coronary heart disease;

To develop reliable criteria for determining which patients are most likely to derive lasting benefit from coronary bypass surgery and which are best managed with more conservative therapeutic techniques.

Coronary heart disease kills about 675,000 Americans each year and disables countless others. An estimated 3.9 million American adults have definite coronary heart disease. Thus, clarification of the indications and contraindications for coronary bypass surgery, together with a thorough appraisal of its potential detriments as well as its short-term and long-term benefits, is a high-priority goal of the National Heart and Lung Institute.

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Progressive Cerebellar Dyssynergia

(Continued from page 139)

Acknowledgment

The authors express gratitude to their teacher, S. Nagaswami, M.D., Chief, Department of Neurology, Veterans Administration Hospital, Topeka, Kansas.

References

1. Hunt, J. Ramsey: Dyssynergia cerebellaris progressiva —a chronic progressive form of cerebellar tremor. *Brain* 37:247-268, 1914.

2. Critchley, Macdonald: Dyssynergia cerebellaris progressiva. *Transactions, American Neurological Association* 87:81-85, 1962.

3. Hunt, J. Ramsey: Dyssynergia cerebellaris myoclonica —Primary atrophy of the dentate system: A contribution to the pathology and symptomology of the cerebellum. *Brain* 44:430-538, 1922.

4. Flood, Steen J.: Dyssynergia cerebellaris progressiva, a film demonstration. *Acta Neurol. Scand.* 39:302-307, 1963.

Editorial Comment

(Continued from page 146)

charges against the medical group as a whole, interpreting the *possibility* of violations of this power as fact. Though he may have had eminently satisfactory experiences himself, he is always aware of "someone" who had an unsatisfactory experience at some place and some time.

Organized medicine, in its anonymity, represents an embodiment of this power to profit from others' distress and railing against it helps to relieve some of the fear of the threat without specifically alienating the personal physician. A call for a change in the medical system may not stem so much from unsatisfactory personal experience with medical contact—or an altruistic concern over the brother who for some reason has had inadequate medical service—as rejection of the power concept which derives basically from man's dependence on but fear of the medical service.

Medical service in any age has been a reflection of that age. Never in the history of man has he had so much personal voice in his governing as he has now. Never have so many been able to read and communicate on an effective level. Never have social achievements been so widespread and beneficial. Never has man been able to produce so much food—or made such an effort to distribute it adequately. Never have men worked so diligently to live together peaceably and profitably. And never has man had better health and medical care.

But the accomplishments accentuate the deficiencies and never has man had such power—and been more uncertain how to face it or use it.—*D.E.G.*

Information for Authors

Manuscript Preparation

Manuscripts must be typewritten, double spaced, leaving wide margins. Submit the original, plus one copy if possible.

Titles should be short, specific, and amenable to indexing. A subtitle is frequently used to keep the main title short.

Summary: All manuscripts should include a short abstract which is a factual (not descriptive) summary of the work.

Author Responsibility: The author is responsible for all statements made in his work, including changes made by the copy editor. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication. Publication elsewhere will be subsequently authorized at the discretion of the Editor.

Galley Proof: To make extensive changes in the article after the text has been set in type may require an additional cost which exceeds the original. The galley proof is for correction of ERRORS, and a rewriting of the article should be done on the original copy BEFORE it is submitted for publication.

Drugs should be called by their generic names; the trade names can be added in parentheses if they are considered important. All *units of measure* must be given in the metric system.

References

Bibliographic references should not exceed 20 in number, documenting key publications. Personal communications and unpublished data should not be included. References should be arranged according to the order of citation, and not alphabetically. All references must be numbered consecutively and all must be cited in the text. Use the style of the AMA publications, giving: name of author, title of article, name of periodical, volume, pages, year.

Illustrations

All material which cannot be set in type, such as photographs, line drawings, graphs, charts, tracings (for preparation of tables, see below) must be mounted on white cardboard. All must be identified on the back as to figure number, author's name, and an arrow indicating top. Legends should be typed double spaced on a separate sheet of paper, limited to a maximum of 30 words.

Drawings and graphs should be done professionally in India ink on illustration board or high grade white drawing paper.

Photographic material should be submitted in duplicate as high-contrast, glossy prints. Color illustrations will be accepted for publication only if the author assumes the cost.

THE JOURNAL will assume the cost of B/W engravings and cuts up to $35 (or 5 cuts). Engraving cost for illustrations in excess of $35 will be billed to the author.

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Because tables are set by hand, their cost is comparable to illustrations. A reasonable number of tables are allowed without cost to the author.

Tables should be self-explanatory and should supplement, not duplicate, the text. Since the purpose of a table is to compare or classify related items, the data must be logically and clearly organized. The relationship and comparison are established by the correct choice of column heads (captions of vertical columns) and stubs (left entries in horizontal listings).

Each table should be typed double spaced, including all headings, on separate sheets of lettersize paper. Oversize paper should not be used. Instead, repeat heads and stubs on a second sheet for tables requiring extra width. Number tables consecutively. Each table must have a title.

Reprints

A reprint order form with a table covering cost will be sent with the galley proof to each contributor. Since the JOURNAL has no way to provide for reprints, they must be ordered by the author and purchased directly from the printer.

SURGERY AND BIOLOGY OF WOUND REPAIR by Earle E. Peacock, Jr. and Walton Van Winkle, Jr. W. B. Saunders Company, Philadelphia. 1970. 630 pages, illustrated. $21.50.

Here is a book that bridges a very wide gap between basic human biology and the surgical care and management of patients. In the first few chapters, the basic concepts of wound healing are presented in a very readable and understandable manner in which the older traditional ideas are explained and even corrected in the light of newer information. A background is laid for the very lucid description of practical surgical techniques and the reasons for their use in the later chapters. The gap between surgical biology and the management of wounds is much wider than the gap, for instance, between the physiology of disease and the surgical management of them. Perhaps this book will catalyze the thrust toward increased investigations in cellular biology, just as there has been a more recent emphasis on the biochemistry, histochemistry, and cytology of hormone and enzyme-secreting cells. There are exceedingly practical suggestions in these twelve chapters regarding surgical technique, the surgical technique of simple and complicated wound closure, coverage problems, repair of tendons, nerves and bones and intestinal anastomoses. In each chapter there are useful summaries of material. The textual description of biological processes is very readable, almost narrative in style. In addition to cellular descriptions and biochemical processes, the emphasis is continuously on function, both normal and abnormal. Experimental data are frequently called into use to help explain biologic phenomena and clinical responses. Photographs, drawings, and graphs are clear and to the point. Commonly used words, such as contraction and contracture, are defined and differentiated for better understanding. The bibliography at the end of each chapter for suggested reading is especially valuable for those who wish to study in greater depth. For the average student and surgeon, the textual material would seem more than adequate. Together with the technical descriptions, there are interspersed cellular and histologic descriptions explaining the rationale for certain features of the described technique—all this with an eye toward function.

The book certainly accomplishes its purpose to help practicing surgeons treat wounds more intelligently and thus more successfully. The basic concept of the book, which recurs frequently, is that by the interruption of tissue integrity there results a scar which is not just a formerly desired consequence of healing but an undesirable, functionless tissue. This scar tissue is capable of compromising special tissue function and leading to complications of stricture, obstructions, cosmetic deformities, impedance of habilitation, and limitation of motion. The author states that, "The importance of such a concept becomes readily apparent. In so many patients it is not the lye burn of the esophagus, the inflammation of the heart valve, or the injury to the liver that kills; unappreciated though it may be, it is the scar that forms during healing that impairs health and in some patients may even cause death." In the process of healing as a result of cell movement, cell division and cellular synthesis of various proteins, the end product is primarily the crystalline fibrous protein which behaves predictably and which can be manipulated according to presently understood basic principles of crystalline protein chemistry. In numerous clinical situations the possibility of such manipulation is referred to. For instance, in the chapter on Healing and Repair of Viscera, the point is again made that all healing is not necessarily good and that healing by scar tissue, in particular, may be bad. The "over healing" of peritoneal wounds, "traumatic scars of the peritoneum" lead to the too common complications of intestinal obstruction due to obstructing adhesions, a disease limited to human beings. At the present time, the surgeon can only strive to cause the adhesions to occur in locations where intestinal obstruction is not likely to follow; the solution to such problems, it is pointed out, will come when it is possible to influence intermolecular and intramolecular cross-linking of newly synthesized collagen. Anti-inflammatory agents and lathyrogenic substances need to be studied and developed.

This book is a refreshingly lucid and intelligent exposition of basic biologic phenomenon which should explain it and assist every surgeon in his technical care of patients.—*S.R.F.*

The D. C. Line

Editor's Note: The Editorial Board feels that the Kansas Medical Society would profit by maintaining contact with Representative Bill Roy, both as a source and interpreter of political activities on the national medical front. Accordingly, we are initiating a monthly column written by Dr. Roy. It is hoped that this will not only provide the service intended, but invite a response of readership either through the JOURNAL or to Dr. Roy directly.

Permit me to comment on a potpourri of medical legislative items in this column.

The House and Senate have now both acted to require congressional approval of Supreme Court proposed changes in the federal rules of procedure. Prior to this action, procedure rule changes would become operative unless the Congress acted not to accept the proposals of the chief justice of the Supreme Court.

This is of great importance to physicians because a recently proposed change would have effectively abolished the patient-physician privilege of confidentiality. This proposed abolishment, in my opinion, would interfere with the effective practice of medicine. Patients would hesitate to reveal facts necessary for their care because of fear such information would be spread on the public record and perhaps be prejudicial to them in a court action. It is highly unlikely that Congress will approve any such change in the federal rules of procedure in an up-down vote. Formerly, such a change could have occurred because of the failure of timely congressional action to reject such a proposal. Professional Standards Review Organizations also offer a potential threat to the confidential relationship so necessary to optimal medical practice.

At this writing, several favorable events make it appear more likely that my Health Maintenance Organization Act will become substantially the HMO law. It is my understanding that the AMA Council on Legislation endorsed the bill as introduced by me and most subcommittee members in January. The recommendation of endorsement will be submitted to the House of Delegates in June. Any action then may be after the fact, because there may be an HMO law by then.

The endorsement of the house bill by House Minority Leader, Rep. Gerald Ford (R-Michigan) before the AMA's first National Leadership Conference in Chicago, on February 17, is also very encouraging to me. According to the *AMA News,* Rep. Ford reiterated the same basic points that I made in last month's column: the huge cost of the senate bill and the subsidy which it provides for HMO recipients only. He pointed out that the Senate passed their version of the HMO bill in 1972 60:14, and probably will pass the same bill again.

The House Republican leader "urged AMA to expand its rapport with members of the HMO bill-writing House Subcommittee on Health and persuade them to push hard in conference for the House bill. . . ." My fellow Kansas physicians, you may save your time and stamps on this issue. *If* a member of the conference committee, I will hold firmly for our version. Any HMO legislation will likely bear my name, and the last thing that I want is an expensive, ineffective boondoggle.

My staff and I are working on three other pieces of legislation, which, if they become law will be of utmost importance to all providers and recipients of health care. In combination, the three bills would provide a "nearly definite answer" for our existing problems. One is a national health insurance bill. The proposal is basically mandated third-party coverage requiring few or no additional dollars from the general funds of the federal government or the Social Security trust funds. I briefly outlined this proposal in a talk before members of the Illinois State Medical Society in Washington in March.

A second proposal is to take advantage of the present tumult and the needed review of existing health proposals, and to bring some rhyme and reason out of three present areas of federal expenditures: Comprehensive Health Planning, Regional Medical Programs, and any continuing need for health facility subsidies (Hill-Burton). A combination of staffs, including the staff of our subcommittee's chairman, Paul Rogers, are working with their members in these areas of planning, technical assistance, and federal assistance for facilities.

Finally, we have our teeth deeply sunk in a bill soon to be introduced which will help (I stress *help*) provide physicians for underserved areas, especially rural areas.

We have worked closely with nearly all health providers and health-related groups, except the AMA (by their choosing), in an effort to make some sense of medical care legislation and at the same time avoid the destruction or disruption of a system that is generally doing the best job in the world.

Each bill that I introduce I regard as only an intermediate working draft relative to the law which it may become. A long process of hearings, markup sessions, and conferences follows. New information and compromise are inevitable.

Meanwhile, it is my intention to make available to every member of the Kansas Medical Society the bills and remarks when they are introduced. I seek your inquiries and advice.—*W.R.R.*

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Epidemiology & Disease Control Services—Registration & Health Statistics Services—Kansas Morbidity Incidence
Summary of Cases Reported in November, 1972 and 1971

	November			*January-November Inclusive*		
Diseases	*1972*	*1971*	*5-Year Median 1968-1972*	*1972*	*1971*	*5 Year Median 1968-1972*
Amebiasis	3	2	3	35	20	20
Aseptic meningitis	1	2	1	32	14	14
Brucellosis	—	—	—	1	1	1
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	1	1	1	8	44	13
Encephalitis, post-infect.	—	—	—	8	6	6
Gonorrhea	950	545	489	8,005	6,778	6,244
Hepatitis, infectious	22	40	40	453	565	453
Measles (Rubeola)	2	4	2	39	1,396	39
Meningococcal meningitis	3	—	1	19	28	19
Mumps	38	58	38	724	915	724
Pertussis	2	1	—	10	13	8
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	1	1	3
Rubella (German Measles)	1	8	6	197	627	125
Salmonellosis	40	15	25	414	500	272
Scarlet fever	6	4	5	42	52	42
Shigellosis	18	79	18	464	865	138
Streptococcal infections	1,071	260	260	6,048	4,355	3,855
Syphilis	81	100	104	1,160	1,262	1,267
Tinea capitis	5	6	6	30	20	37
Tuberculosis	13	20	15	180	148	190
Tularemia	—	—	—	6	3	3
Typhoid fever	—	—	—	3	—	2

COMBINED ADMINISTRATION OF CERTAIN LIVE-VIRUS VACCINES

The Advisory Committee on Immunization Practices of the US Public Health Service has recently issued a statement clearing the way for the simultaneous administration of certain live-virus vaccines. Combinations now acceptable are:

1. Measles, mumps, and rubella vaccine combined (MMR) or measles and rubella vaccine combined (MR) may be given simultaneously with trivalent oral polio vaccine.

2. Single-strain (separate measles, mumps, or rubella) vaccines may also be administered simultaneously with trivalent oral polio vaccine, provided the measles, mumps, or rubella vaccines so used are the specific vaccines already licensed and available in combined form. (This limitation means that only Merck, Sharp & Dohme's single antigen vaccines for measles, mumps, or rubella may be given with trivalent oral polio vaccine.)

Taking into consideration the specific vaccines presently available from the Immunization Program, Division of Epidemiology, the following live-virus vaccines may now be administered the same day:

1. Measles and rubella (MR) with trivalent oral polio.

2. MSD's rubella (Meruvax) with trivalent oral polio.

The acceptance of these new combinations should simplify immunization clinic scheduling, without compromising immunity. The previous recommendation to separate the administration of live-virus vaccines by a 30-day period is still in effect unless the approved combinations are given on the same day.

The Kansas Medical Society—1972-1973

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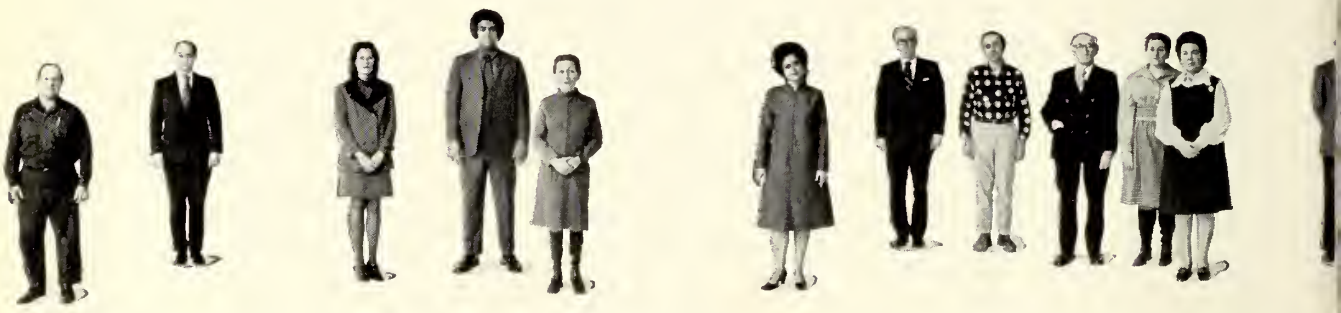

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Scientific ARTICLES

Hodgkin's, Infections and Neutrophils

Infectious Complications in Hodgkin's Disease

NORVIN D. SCHUMAN, M.D.,* *Kansas City, Kansas*

THE ANATOMIC pathologist's impression of infectious complications in Hodgkin's disease differs at times from that of the clinician.[1] To the autopsy prosector, most patients with Hodgkin's disease complicated by an infectious process die with, if not from, common bacterial infections, whereas the clinician—confronted with an apparent infectious process that does not respond to conventional treatment and aware of the decreased cellular immunity in patients with Hodgkin's disease—more often is concerned about uncommon infections, such as mycotic, mycobacterial, or parasitic ones.

It seemed desirable to use autopsy data to determine whether or not an infection was present, since only by extensive examination of multiple organs—by culture and special histologic preparations—can one be sure whether a process evaluated by clinical means is due to infection or some other pathologic condition, *e.g.*, lymphomatous infiltration.

Materials and Methods

The autopsy protocols and clinical charts of 45 patients with Hodgkin's disease autopsied at the University of Kansas Medical Center during the years 1952-1969 were reviewed. One case was not included in the study because sufficient clinical data for correlation were not available.

An infection was judged to have been present at autopsy on the basis of positive postmortem cultures or histopathological changes. Postmortem cultures at the University of Kansas Medical Center routinely include cultures of the blood of the heart and cultures of the spleen; these, as well as tissue or fluid from suspected infected areas, are cultured under aerobic and anaerobic conditions. In special circumstances, such as in cases of malignant lymphoma, cultures for fungi and acid-fast bacilli are also done

The University of Kansas Medical Center serves as a referral diagnostic and treatment center for patients with Hodgkin's disease. This affords an opportunity for a group of physicians, including pathologists, to see more of this type of patient than the individual family physician, internist, or pathologist practicing in the area sees. This paper takes advantage of a central repository of information at the University of Kansas Medical Center in an attempt to define the kinds of infections that most commonly complicate Hodgkin's disease.

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on request of the prosector. Liberal use of special stains to identify microorganisms on histologic sections is also made in autopsied cases of Hodgkin's disease.

Both clinical and autopsy findings were considered in evaluating the cause of death. Where there was any uncertainty, the opinion of the autopsy pathologists (prosector and one or two consultants) as to the cause of death or factors contributing to death was honored. Their knowledge of the case, from the point of view of recent review of the clinical course as well as from their firsthand knowledge of the postmortem anatomic findings, was considered by the author to be the best available.

Bone marrow sampling, used in this study to evaluate depression (hypoplasia) or lymphomatous infiltration (replacement) of the bone marrow, routinely includes specimens from the sternum, ribs, and vertebral bodies. In cases such as those with Hodgkin's disease, samples are often taken from other areas as well, *e.g.*, the femur.

Criteria for diagnosing leukopenia (<4,000 WBC/cu mm), neutropenia (<1,500 neutrophils/cu mm in children; <1,800/cu mm in adults), and lymphopenia (<1,400 lymphocytes/cu mm in children; <1,000/cu mm in adults) were taken from Miale.[2] Differences in counting methods over the period of time of the study precluded establishing our own specific criteria, but Miale's suggestions are consistent with data obtained in our laboratory using present methods.

Results

Of the 44 patients with Hodgkin's disease, 32 also had infections present at the time of autopsy. Some of these had one or two less significant infections of the same or a different etiologic category in addition to a primary infection *(Table 1)*. In 12 patients no infection was found at autopsy. As indicated in Table 1, there were 29 bacterial infections, nine fungal infections, and two viral infections. Significant infections (such as those causing death or contributing to it) were divided as follows:

Bacterial infection: 26 cases (59%).
Fungal infection: 4 cases (9%).
Viral infection: 1 case (2%).

There were no cases of infection due to Mycobacterium tuberculosis, Cryptococcus neoformans, or Pneumocystis carinii. While one might expect more fungal and mycobacterial infections than non-mycobacterial bacterial infections, the opposite was found. This leads one to look beyond the known decreased cellular immunity in these patients to other aspects of the host defense systems.

Humoral immunity (antibody formation) is generally considered to be largely intact in early, active Hodgkin's disease; in advanced (generalized) disease, gross antibody formation is still intact, but there are less obvious hints of disturbed antibody formation; the terminal Hodgkin's disease patient may display hypogammaglobulinemia and poor antibody formation.[3]

Although this present study was not designed to investigate and correlate the humoral immune status of these Hodgkin's disease patients, in 21 cases gamma globulin determinations (sometimes multiple ones) had been done. Of these cases, 14 had infections at the time of autopsy, and seven were without terminal infections. In no case was hypogammaglobulinemia found. In 12 cases, the gamma globulin levels were within normal range. In nine cases, hypergammaglobulinemia was present. Immunoassays were done on three patients, all without infections. These were normal in two cases with normal total gamma globulins; in one case, with hypergammaglobulinemia, the IgG fraction was two and one-half times the upper limit of normal. Of those tested, a greater percentage of patients without infection had hypergammaglobulinemia than those with significant bacteria or fungal infections; however, this difference was not statistically significant.

In a different area of immunity or host response in the present study, leukopenia was not a significant factor associated with infection when all cases with bacterial or fungal infections were considered, but it was considerable ($p < 0.05$) when cases with sig-

TABLE I

INFECTIONS PRESENT AT AUTOPSY IN 44 PATIENTS WITH HODGKIN'S DISEASE

	Bacterial Infections			*Fungal Infections*			*Viral Infections*		
	CAUSE OF DEATH*	CONTRIBUTORY TO DEATH	NON-SIGNIFICANT	CAUSE OF DEATH*	CONTRIBUTORY TO DEATH	NON-SIGNIFICANT	CAUSE OF DEATH*	CONTRIBUTORY TO DEATH	NON-SIGNIFICANT
Primary infections ...	11	12	3	1	3	1	1		
Secondary infections ...		3				4			1

* Either the cause of death or a highly significant factor in death.

nificant (causing death or contributing to death) bacterial or fungal infections were compared to cases without infection.

Lymphopenia was significantly associated with bacterial or fungal infections (all cases, significant and non-significant) when compared to the no-infection group ($p < 0.01$), and this significance also pertained to the significant bacterial or fungal infection group ($p < 0.05$), and to the all-bacterial infections group ($p < 0.05$). Lymphopenia was present in all eight cases with fungal infections, but when compared to the no-infection group, there was no significant difference on statistical analysis.

Neutropenia was significantly associated with bacterial or fungal infections ($p < 0.05$), and this significance held true in a breakdown of the infectious complications into the following:

Significant bacterial or fungal infections, $p < 0.05$.

Bacterial cause of death, $p < 0.05$.

All fungal infections, $p < 0.01$.

Significant fungal infections, $p < 0.01$.

Analyses were done to find the relative importance of bone marrow infiltration (replacement) by neoplastic cells, and of bone marrow depression or hypoplasia (presumably due to treatment) as factors in increased susceptibility to infection. In three cases, bone marrow samples from some sites showed infiltration and samples from other sites, in the same patient, showed bone marrow depression. Judging from examination of the postmortem bone marrow slides, these cases were assigned to either the bone marrow infiltration or the bone marrow depression group, on the basis of the predominant feature present.

Bone marrow infiltration was not a significant factor associated with any of the categories of infection. Nor was bone marrow infiltration significantly associated with leukopenia or neutropenia.

On the other hand, bone marrow depression was a significant factor associated with infections due to bacterial or fungal agents ($p < 0.05$). Only one case in the no-infection group had bone marrow depression or hypoplasia, whereas 15 of the 32 with bacterial or fungal infections had bone marrow depression. The significant association of bone marrow depression with bacterial or fungal agents held true within the different categories of infectious complications:

Significant bacterial or fungal infections, 13 of 28 patients, $p < 0.05$.

All bacterial infections, 14 of 29, $p < 0.05$.

Significant bacterial infections, 12 of 26, $p < 0.05$.

Bacterial infections causing death, six of eleven, $p < 0.05$.

All fungal infections, six of eight, $p < 0.01$.

Significant fungal infections, three of four, $p < 0.05$.

Both bone marrow infiltration and bone marrow depression were associated with lymphopenia (12 of 14 patients with bone marrow infiltration had lymphopenia, and 15 of 16 patients with bone marrow depression had lymphopenia).

Neither of the two cases with viral infection had bone marrow depression, leukopenia, or neutropenia. Both had lymphopenia. One had bone marrow infiltration and the other had a normal bone marrow. The humoral immune status of these two patients was not studied.

Age of the patients at diagnosis of the Hodgkin's disease was not related to subsequent development of infectious complications. Age at the time of diagnosis in the infection group ranged from 11 to 71 years, with a mean of 38 and a median of 40 years. There was a bimodal distribution in this group, with peaks at ages 10-19 and 40-49 years. Age at the time of diagnosis in the no-infection group ranged from seven to 58 years, with a mean of 34 and a median of 38 years. The bimodal distribution seen in the infection group was not present in the no-infection group (mode: 40-49 years), probably because of the small number of cases.

Type of treatment was not related to the development of infectious complications. Contrary to the expected, treatment with corticosteroids (usually prednisone) was used in 50 per cent of the patients with no infection, compared to only 44 per cent of patients with infections. However, this difference was not statistically significant.

Nitrogen mustard treatment, alone or in combination with other treatment, was used in 56 per cent of the cases with infections, and in 50 per cent of those without infections. Other chemotherapy, alone or in combination with other treatment, was used in 34 per cent of those cases with infections, and in 42 per cent of the no-infection group. These differences in nitrogen mustard and other chemotherapy used in the infection group and the no-infection group are not statistically significant.

Radiation therapy, alone or in combination with other treatment, was used in 75 per cent of both groups. Radiation therapy together with nitrogen mustard treatment was used in 22 per cent of the cases with infections, but in only 8.3 per cent of the no-infection cases; this is not statistically significant, however.

Duration of disease after treatment was different in the infection group and the no-infection group. Average survival of all patients with a significant bacterial or fungal infection was three and one-third years. Patients with a significant bacterial infection

survived on the average three and one-half years after diagnosis. Those with significant fungal infections survived two and one-half years. Patients with no infection survived on the average approximately one and one-half years.

Discussion

The percentage of patients with Hodgkin's disease who had infections at the time of autopsy in the present study (32 of 44, or 73%) is similar to that found by Casazza *et al.* (35 of 51, or 69%).[4] Bacterial infections were indeed the largest group complicating these cases of Hodgkin's disease. This was also the observation of Casazza *et al.*. who found that becterial infections were most common in this group of patients, caused the major portion of morbidity, and were associated most frequently with mortality. Aisenberg[3] also considered bacterial infections to be the most common infectious complication of Hodgkin's disease.

Whereas Casazza *et al.*[4] considered that only five of their 51 patients (10%) died because of their infections, in the present study infections were given as the cause of death in 13 of 44 cases (30%). This, no doubt, reflects differences in the interpretation of the cause of death. Our cases, as did those of Casazza,[4] all had active Hodgkin's disease at the time of autopsy (41 in stage IV; one, stage III-B with a bacterial infection contributing to death; one, stage III-A with a viral infection causing death and a bacterial infection contributing to death; one, stage II-B with no infection). And, indeed, it may be argued that the Hodgkin's disease was the cause of death in each. Nevertheless, if those cases in which infection contributed to death are added to those in which infection was the cause of death, it is apparent that many of the cases with Hodgkin's disease probably would not have died at the time they did if they had not had infectious complications. It, therefore, seemed appropriate to determine why one group of patients was more susceptible to the development of infectious complications while another group was not.

No correlation could be made between the various types of treatment (radiotherapy, chemotherapy, and steroid therapy) and a predisposition to the development of infection. This was also the observation of Casazza *et al.*[4]

The presence of significant bacterial or fungal infections was related to leukopenia in our study. This is contrary to the findings of Casazza. However, their criterion for diagnosing leukopenia (granulocytes $<1{,}000$/cu mm) was more stringent than ours.

Lymphopenia was also significantly associated with the presence of bacterial or fungal infections. One would expect the association of lymphopenia with the occurrence of fungal infections, since the lymphocyte is associated with cellular immunity, and since an increased incidence of fungal infections is seen when there is decreased cellular immunity. The role of the lymphopenia in the increased susceptibility to bacterial infections is not clear. The absence of mycobacterial infections may be related to the prophylactic use of antituberculous drugs; however, this parameter was not evaluated in the present study. Lymphopenia in this study was associated both with bone marrow depression and with bone marrow infiltration. In addition, other processes are operative in the patient treated for Hodgkin's disease which contribute to lymphopenia: it may be related to the lympholytic effect of drugs used, particularly corticosteroids; there may be depression of lymphopoiesis by drugs used or due to infiltration of lymphocyte-producing organs (other than the bone marrow) by neoplastic cells; and lymphopenia may be present because the basic disease process itself (the Hodgkin's disease) involves the lymphoid system, leaving few normal lymphoid elements to enter the peripheral blood.

Whereas lymphopenia in patients with treated Hodgkin's disease appears to be related to many factors, the neutropenia in these patients appears to be primarily related to bone marrow depression (or hypoplasia), which in turn is probably related to intensive therapy (radiotherapy and chemotherapy). Neutropenia in this study was significantly associated with susceptibility to bacterial and fungal infections in the patients with treated Hodgkin's disease. It is interesting that while neutropenia was significantly associated with fungal infections, lymphopenia was not. This may indicate that even when cellular immunity associated with lymphocytes is intact, if the phagocytic system (neutrophils) is not, fungal infections may ensue. The study of neutrophils and other phagocytic cells in Hodgkin's disease has received little attention in the past, and this present study would indicate that greater emphasis should be given to this area of study. The importance of properly functioning neutrophils in the defense of the human host has recently had re-emphasis with the discovery and delineation of diseases of neutrophil bactericidal and fungicidal defects, beginning with chronic granulomatous disease of childhood. The simplest form of neutrophil deficiency disease would be one in which the numbers are decreased below a critical level, such as in many of the Hodgkin's disease cases in this study. It would also be interesting to know, in those cases of Hodgkin's disease in which neutropenia is not present, whether or not there is a qualitative deficiency (acquired bacteriocidal and fungicidal defect) of the neutrophils, perhaps related to alterations due to the Hodgkin's disease itself or to therapeutic agents used. The *in vitro* phagocytosis test and the nitro-

blue tetrazolium dye reduction test are available for such investigation. Migratory response of neutrophils in both treated and untreated Hodgkin's disease should also be evaluated. Results of such studies should be available before therapeutic plans to correct the neutrophil deficiency are used. Thus, if qualitative neutrophil deficiencies are present in treated or untreated Hodgkin's disease patients, stored and transfused neutrophils may be subject to the same fate, particularly in the treated patients, negating the therapeutic usefulness of transfused neutrophils. Transplanted bone marrow cells may likewise be subject to the same changes that are found in treated Hodgkin's disease patients, as reflected in this study. Another therapeutic alternative would be the protection of the bone marrow cells, either the patient's own or those transplanted, from the cytotoxic effects of the therapeutic agents used in treating Hodgkin's disease. Therapeutically, the proper use of antibiotics does not supply the answer. The importance of phagocytic cells, particularly neutrophils, in terminating infections even in the presence of therapeutic levels of bacteriocidal antibiotics may be seen in the poor response to antibiotic administration in patients with chronic granulomatous disease.[5]

It may well be asked whether new therapeutic plans to prevent or treat infectious complications of Hodgkin's disease are necessary, since in this study and in that of Casazza *et al.*[4] the patients with infections actually survived longer than those without infection. In answer, it may be said that in his efforts to make the patient with Hodgkin's disease more comfortable and to give him hospital-free time, one of the clinician's biggest problems is bacterial and fungal infections, and a more satisfactory approach to the problem is still needed. The fact that the patients with infections survived longer than those without them may give us a clue to the pathogenesis of the infectious complications of Hodgkin's disease. The longer survival of the patients with terminal neutropenia and infections suggests that vigorous therapy had indeed controlled the Hodgkin's disease, if not well, at least better than in the no-infection group, but that eventually the delicate balance between therapeutic response and undesired effect (bone marrow depression) tipped toward the latter, and that neutropenia (usually, in our experience, a component of pancytopenia) developed. Whereas the anemia and thrombocytopenia accompanying bone marrow depression were amenable to therapeutic endeavors, replacement of the neutrophils by functioning cells with useful survival was not possible, and the patients were left with an increased susceptibility to bacterial and fungal infections. One would wonder whether, if this line of defense (the neutrophils) had been present in these patients, they may have had even a longer survival.

Summary

Of the 44 patients with Hodgkin's disease in this study, 32 died with infections. Bacterial infections were the most common type. Uncommon bacterial infections and parasitic infections were not found. Bacterial and fungal infections were significantly associated with the presence of lymphopenia and neutropenia. Neutropenia was significantly associated with bone marrow depression, or hypoplasia, probably related to vigorous therapy of the Hodgkin's disease. The results of this study emphasize the importance of neutrophils in the human host's defense against bacterial and fungal infections.

Comment

The time period of the clinical study of Hodgkin's disease patients by Forman[6] corresponds to the latter part of this study, and the patients referred to in his Table 8 are represented in the present study also.

Acknowledgment

Dr. John Glick, of the Clinical Laboratories, University of Kansas Medical Center, did the statistical analyses of the data collected in this study.

References

1. Castleman, B. and McNeely, B. U.: Case records of the Massachusetts General Hospital (Case 31-1970). *New Eng. J. Med.* 283:191-201, 1970.
2. Miale, J. B.: *Laboratory Medicine—Hematology.* 3d ed. St. Louis, The C. V. Mosby Company, 1967, p. 846.
3. Aisenberg, A. C.: Immunologic Considerations. In: *Hodgkin's Disease,* D. W. Molander and G. T. Pack (ed.), Springfield, Charles C Thomas, 1968, p. 64-77.
4. Casazza, A. R.; Duvall, C. P. and Carbone, P. P.: Summary of infectious complications occurring in patients with Hodgkin's disease. *Cancer Res.* 26:1290-1296, 1966.
5. Nelson, D. L.: Chronic granulomatous disease of childhood. *J. Kansas Med. Soc.* 71:409-415, 1970.
6. Forman, J.: Hodgkin's disease: A clinical study of 141 patients. *J. Kansas Med. Soc.* 73:58-67, 1972.

Carpal Tunnel Syndrome

A Review of Cases Treated Surgically

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A study of 100 consecutive hands treated surgically at the University of Kansas Medical Center for carpal tunnel syndrome is presented. Findings suggest the importance of early diagnosis and surgical decompression of the median nerve by division of the transverse carpal ligament.

THE CARPAL TUNNEL syndrome is a very common disorder of peripheral nerves, and frequently not diagnosed. It is produced by compression of the median nerve within the carpal tunnel. The carpal tunnel is bounded by the transverse carpal ligament anteriorly and an arch formed by the carpal bones posteriorly. It conducts the median nerve and the long flexor tendons from the anterior compartment of the forearm into the central compartment of the palm. The median nerve passes directly beneath the transverse carpal ligament and lies superficial to the nine flexor tendons of the digits. Any condition which crowds the structure within the carpal tunnel may result in median nerve compression. Symptoms may be pain, paresthesias, or sensory loss in the median nerve distribution, and progressive atrophy of the thenar muscles.

Marie and Foix, two neurologists, in 1913 observed bilateral thenar atrophy and neuroma of the median nerves proximal to the transverse carpal ligament in a patient at autopsy. They were the first to recommend decompression of the median nerve by sectioning the transverse carpal ligament. In 1946, Cannon and Love,[1] neurological surgeons, reported on 38 cases of tardy median palsy, in which nine were treated by operative section of the transverse carpal ligament. Brain,[2] an English neurologist, and his associates in 1947 described six cases treated surgically that presented as spontaneous compression of both nerves in the carpal tunnel, and established this as a firm clinical syndrome.

Our series of 100 hands reviews the experience with carpal tunnel syndrome treated surgically at the University of Kansas Medical Center over a period of eight years.

Ordinarily, subjective symptoms occur months before they are demonstrable on clinical evaluation. These typically consist of pain, paresthesia, vasomotor changes, weakness of the hand, and discomfort of the hand or forearm. The incidence of these is shown in *Table 1.* The only patients that did not register complaints of pain or uncomfortable paresthesia were two young brothers with Hurler's syndrome, who probably had never realized normal sensation in their hands.

The onset of symptoms usually occurs between 40 and 60 years of age *(Table 2).* In this series, the youngest patient was seven, but this was associated with a rare abnormality of carbohydrate me-

TABLE 1

SYNOPSIS OF FINDINGS

	%
Duration of symptoms	
Less than 1 yr.	52
1-2 yrs.	20
Over 2 yrs.	28
Symptoms	
Pain or uncomfortable paresthesias	96
Nocturnal pain	40
Pain in forearm	9
Pain above elbow	5
Examination	
Thenar atrophy	42
Thenar weakness	59
Hypalgesia	65
Hyperesthesia	8
Swelling of hand	12
Redness of hand	4
Increased sweating of hand	1
Phalen's sign—positive (wrist flexion test)	86.4

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TABLE 2

AGE RANGE OF 100 HANDS WITH CARPAL TUNNEL SYNDROME

Age	*Number of Hands*
0-19	5
20-29	4
30-39	7
40-49	28
50-59	27
60-69	16
70-79	7
80-over	6

tabolism (Hurler's syndrome). The oldest patient was 82 years old.

We did not make a sex differential because 24 per cent of the cases were performed at the Kansas City Veteran's Administration Hospital, where the majority of patients are male. However, according to other studies, the syndrome is usually seen in middle-aged women.[3-5]

Systemic diseases or conditions existed in 38 of the 75 patients, the most common being obesity, rheumatoid arthritis, and diabetes mellitus *(Table 3)*. Traumatic conditions of the hand were seldom responsible. Five per cent of cases were related to old wrist fractures. The one case of acute carpal tunnel syndrome caused by thrombosis of a persistent median artery represents a very rare condition. Another 2 per cent of cases experienced recent excessive use of the hands which could be a possible traumatic cause of the syndrome. One case of carpal tunnel syndrome was caused by a ganglion at the wrist.

TABLE 3

OTHER DISEASES OR CONDITIONS PRESENT WITH CARPAL TUNNEL SYNDROME

Disease	%
Obesity	14
Rheumatoid arthritis	14
Diabetes mellitus	5
Old wrist fractures	5
Osteoarthritis	5
Hurler's syndrome	4
Cervical disc	4
Thyroid dysfunction	3
Multiple myeloma	2
Hypertension	2
Tuberculosis	2
Emphysema	2
Blind-strings tennis rackets	2
Gouty arthritis	1
Hodgkin's disease	1
Pregnancy	1
Hypercholesterolemia	1
Thrombosis median artery	1
Wrist ganglion	1
Carcinoma of larynx	1

The occupations of the patients in the series are recorded in *Table 4*.

TABLE 4

OCCUPATION OF 100 HANDS WITH CARPAL TUNNEL SYNDROME

Occupation	%
Housekeeper or cook	16
Laborer	6
Carpenter	6
Student	5
Farmer	4
Mechanic, machinist	4
Laboratory technician	4
Nurse	4
Assembly worker	3
Truck driver	3
Clerk, bookkeeper	3
Cashier	3
Salesman	3
Teacher	3
Librarian	2
Secretary	2
Physician	2
Superintendent of plant	1
Meat cutter	1
Retired	6
Not recorded	17

Clinical Diagnosis

All patients reported sensory symptoms of the hand consisting of numbness, pain, tingling, burning, or a combination of these. Forty per cent experienced night pain. Hanging the hand out of bed, exercising the fingers, or vigorously shaking the hand often caused lessening of pain. Nine per cent of patients had accompanying pain in the forearm, and in five of these the pain reached the shoulder.

On neurologic examination, 42 per cent had atrophy of the thenar muscles and 59 per cent demonstrated thenar weakness. Another frequent finding included hypalgesia (decreased sensation to pin prick) (65%), and 8 per cent demonstrated hyperesthesia (excessive sensitiveness). In addition, examination revealed puffiness of the hand (12%), redness in the median distribution (4%), and increased sweating (1%).

Phalen[3] described a valuable sign that can be evoked by acute wrist flexion. When both wrists are

maintained in an acutely flexed position for 60 seconds, the median nerve is compressed between the tendonous contents of the canal and the transverse carpal ligament. A positive response to this test is the production of numbness and tingling in the median distribution of the hand or in the whole hand. This test will not be positive if there is advanced sensory deficit in the median nerve distribution. The acute wrist flexion test was positive in 86.4 per cent of the 22 cases tested in this manner. We found Tinel's sign to be of little help in the diagnosis.

Electrical Diagnosis

Electrodiagnostic studies of the median nerve have been useful diagnostic procedures in demonstrating the early effects of the carpal tunnel syndrome in our clinic. A nerve impulse velocity is proportional to the diameter of the nerve fiber. Those factors which reduce the diameter of a nerve fiber result in a slowing of the conducted nerve impulse over the affected segment of the peripheral nerve. It has also been noted that the nerve fibers with the largest diameter, the A fibers, which conduct proprioception and somatic motor impulses, are the fibers most sensitive to pressure. The velocity of motor nerve conduction and sensory nerve conduction in the median nerve is known, and is measurable. A normal motor and sensory conduction velocity in the forearm segment of the median nerve with slowing of conduction through the carpal tunnel may be demonstrated in the carpal tunnel syndrome.

The normal conduction latency for motor nerves through the carpal tunnel region by our laboratory method is 4.8 msec. The normal conduction latency across the carpal tunnel of the sensory nerve fibers is normally below 3.7 msec. Conduction latencies in excess of these limits are thought to constitute slowing through the carpal tunnel space.

Slowing of sensory conduction has been found to precede slowing of motor conduction; hence, the sensory conduction latency study may reveal the carpal tunnel syndrome prior to motor changes in the related muscles of the thumb. Electromyography is included as a part of the assessment and may reveal neuropathic signs prior to clinical evidence.

Motor latencies varying from normal limits to 26 msec have been reported. Motor distal latencies have been found to be prolonged in approximately 60 per cent of patients with the clinical diagnosis of carpal tunnel syndrome.[6] The sensory distal latency has been found to be abnormal in 22 of 29 patients in a study by Gilliatt and Sears.[7] No sensory latencies in excess of 7 msec were reported.

Goodman and Gilliatt[8] have reported a return to normal range of the distal motor latency postoperatively in a series of 23 patients followed with serial measurements for many months. Recovery of sensory latencies postoperatively through the carpal tunnel has been found to be less pronounced by Melvin, Johnson and Duran,[9] who found 18 of 30 nerves to continue the distal motor latency one year after operation.

Electrodiagnostic studies confirmed the diagnosis in 67 per cent of the hands in this series.

Treatment

For patients requiring treatment for carpal tunnel syndrome, we have found no effective method except surgical decompression of the median nerve by total division of the transverse carpal ligament. We prefer to do the operation under local anesthesia using the Bier block with a pneumatic tourniquet applied to the upper arm.

Section of the ligament is accomplished by an incision along the crease at the base of the thenar eminence *(Figure 1)*. Care is used to avoid the important but variable palmar cutaneous branch and the recurrent motor branch of the median nerve to the thenar muscles. The point of maximum compression is beneath the midpoint of the carpal ligament, and

Figure 1. The recommended inter-thenar incision. The dotted line represents a proximal extension which may be used to cross the wrist if the median nerve is to be explored in the forearm.

proximal to this one may see slight swelling of the median nerve. This swelling is seldom noticed because our incision is usually confined to the hand. If it is necessary to explore the median nerve in the forearm, the incision can be extended proximal to the wrist. Almost immediate relief of pain occurs after adequate section of the transverse carpal ligament.

Results

Of the 100 carpal tunnel syndromes selected for operation, 50 patients (50%) had bilateral involvement; the right wrist was involved in 34 patients (34%); the left wrist in 16 patients (16%). Six of the unilateral hands had bilateral symptoms but required only unilateral operation.

In all cases, the operation was successful in producing almost immediate and permanent relief of pain or paresthesia. The hands were reexamined at intervals after the operation, the followup period varying from one month to two years. Followup was by personal interview and examinations were conducted in the outpatient clinic. Ten per cent of patients were lost to followup.

On reexamination, all cases were relieved of nocturnal pain. None had pain in the arm or forearm. Prior to surgery, thenar atrophy was present in 42 per cent of cases. Of these, 38 per cent regained normal muscles. Of the remaining 4 cases (4%), one represented a bilateral case in a 12-year-old boy with Hurler's syndrome. One had a long history of muscle wasting. The other two hands involved atrophy of several years' duration.

Before surgery, 65 per cent of hands demonstrated hypalgesia (decreased pinprick sensation). On followup, patches of hypalgesia remained in 8 per cent of the hands, and 7 per cent of these presented histories of several years' duration of sensory loss. These results should emphasize the importance of early diagnosis and decompression. Whereas 8 per cent had some hyperesthesia (excessive sensitiveness of the skin) before surgery, only 2 per cent showed a patch of hyperesthesia on followup. One case (1%) had continued swelling after surgery, possibly due to arthritis.

All other patients were either completely relieved of their symptoms or were significantly improved. Elderly patients in this series were just as likely to have good operative results as the younger patients.[10]

There was one complication in the case of a nurse who injured her median nerve nine months postoperatively while performing cardiac massage on an intensive care patient. A superficial wound infection occurred in one wrist. It was successfully treated and did not affect the good result.

The series encompasses eight years of operative therapy for carpal tunnel syndrome. We feel that we have excellent rapport with the majority of these patients and in no instance are we aware of a late failure of surgical therapy, or of a recurrence of a carpal tunnel syndrome in an adequately operated hand.

References

1. Cannon, B. W. and Love, J. G.: Tardy median palsy; median neuritis; median thenar neuritis amenable to surgery. *Surgery* 20:210, 1946.

2. Brain, W. R.; Wright, A. D. and Wilkinson, M.: Spontaneous compression of both median nerves in the carpal tunnel: six cases treated surgically. *Lancet* 1:277, 1947.

3. Phalen, G. S.: The carpal-tunnel syndrome: seventeen years' experience in diagnosis and treatment of six hundred fifty-four hands. *J. Bone Joint Surg.* 48-A:211, 1966.

4. Doyle, J. R. and Carroll, R. E.: The carpal tunnel syndrome: a review of 100 patients treated surgically. *Calif. Med.* 108:263, 1968.

5. Kremer, M.; Gilliatt, R. W.; Golding, J. S. R. and Wilson, T. G.: Acroparaesthesia in the carpal-tunnel syndrome. *Lancet* 2:590, 1953.

6. Thomas, P. K.: Motor nerve conduction in the carpal tunnel syndrome. *Neurology* 10:1045, 1960.

7. Gilliatt, R. W. and Sears, T. A.: Sensory nerve action potentials in patients with peripheral nerve lesions. *J. Neurol. Neurosurg. Psychiat.* 21:109, 1958.

8. Goodman, H. V. and Gilliatt, R. W.: The effect of treatment on median nerve conduction in patients with the carpal tunnel syndrome. *Ann. Phys. Med.* 6:137, 1961.

9. Melvin, J. L.; Johnson, E. W. and Duran, R.: Electrodiagnosis after surgery for the carpal tunnel syndrome. *Arch. Phys. Med.* 49:502, 1968.

10. Cseuz, K. A.; Thomas, J. E.; Lambert, E. H.; Love, J. G. and Lipscomb, P. R.: Long term results of operation for carpal tunnel syndrome. *Mayo Clin. Proc.* 41:232, 1966.

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Neurofibromatosis With Sarcoma

Sarcoma Complicating von Recklinghausen's Neurofibromatosis

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MULTIPLE neurofibromatosis (Recklinghausen's disease) is a genetically determined disease of protean manifestations, which affects primarily the peripheral nerves of the somatic and autonomic nervous systems. The disease is transmitted by an autosomal dominant gene, and the phenotype has been estimated to occur with a frequency of one in two thousand persons.[1] The most frequent clinical manifestations of multiple neurofibromatosis are random areas of cutaneous pigmentation and multiple subcutaneous nodules along the distribution of nerve trunks. The systemic nature of the disease is manifested by the frequent occurrence of osseous lesions,[1,2] endocrine disorders,[1] and mental retardation.[2]

The most serious complication of multiple neurofibromatosis, however, is the increased frequency of associated neoplasia. Optic nerve gliomas, cerebral and cerebellar astrocytomas, intramedullary gliomas of the spinal cord, and sarcomas of peripheral nerves and somatic tissues have been reported to occur with an increased incidence in multiple neurofibromatosis.[3] The purpose of this communication is to record the clinical details of a patient with multiple neurofibromatosis who developed a sarcoma, and to discuss this neoplastic complication of the disease.

Case Report

A 19-year-old man was admitted to the Kansas University Medical Center on January 19, 1972, complaining of pain and weakness in the left leg of five months' duration. The patient was known to have had multiple neurofibromatosis since 1962, when the diagnosis was made by the histological examination of a subcutaneous nodule which was excised from the right arm.

Five months prior to admission, the patient noted the onset of a sharp, stabbing pain over the dorsomedial aspect of the left foot as well as a dull, cramping pain in the left anterior and anteromedial thigh. The pain was exacerbated by walking and was unrelieved by rest. The frequency of the pain increased during the five months prior to admission, although the patient was able to continue working as a maintenance man. Associated with the pain was a progressively increasing weakness of the left leg which caused the patient to walk with a limp. Shortly prior to admission, the patient noted that he was unable to raise his left thigh without manual assistance. He also had noticed twitching of the muscles of the left thigh since the onset of pain. The patient denied any other symptoms referable to the nervous system. He had noticed an 8.1 kg (18 lb) weight loss during the five months prior to admission.

Three months prior to admission, the patient noticed a small, circumscribed, tender mass in the left lower quadrant of the abdomen. The mass had enlarged considerably since its onset but had not produced any gastrointestinal symptoms.

No history of neurofibromatosis in other family members was elicited, however personal examination of the living relatives was not possible.

Physical examination revealed a thin white male with multiple, circumscribed, soft, mobile, nontender, subcutaneous nodules on the face, neck, back, thorax, and all extremities. These nodules were both pigmented (tan to dark-brown in color) and nonpigmented. Café-au-lait spots were numerous on the face, neck, trunk, and extremities. Freckling of the skin of both axillae was present. There was a moderate thoracic kyphoscoliosis. A large (5 x 21 cm), firm, tender mass was palpated in the left lower quadrant of the abdomen.

The neurological examination revealed a slight limp of the left leg. There was marked atrophy and frequent fasciculations of the musculature of the left thigh. A profound degree of weakness of the left iliopsoas muscle and moderate weakness of the left quadriceps femoris muscles was present. Reflex examination disclosed hyperreflexia of the right lower extremity with sustained clonus of the right ankle, an absent quadriceps femoris reflex on the left, and bilateral Babinski's sign. Superficial and deep sensibility was normal. Cerebellar functions were normal, and cranial nerve functions were intact.

The following laboratory studies were normal or negative: urinalysis, complete blood count, fasting blood glucose, blood urea nitrogen, serum creatinine, serum electrolytes, calcium, phosphorus, cholesterol, triglycerides, erythrocyte sedimentation rate, serological test for syphilis, true thyroxin, bilirubin (total and direct), alkaline phosphatase, serum protein

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electrophoresis, and 24-hour urine collection for vanillylmandelic acid. The cerebrospinal fluid contained 6 red blood cells/cu mm with a protein value of 182 mg/100 ml, and a glucose value of 62 mg/100 ml. The colloidal gold curve measured 0012221000. Cytology for malignant cells was negative.

Roentgenograms of the chest showed a mild thoracic scoliosis. X-rays of the left lower extremity revealed several sharply demarcated lytic defects in the distal femoral metaphysis and the proximal tibial and fibular metaphyses. Roentgenograms of the vertebral column showed distortion of the C_1-C_2 posterior arches and enlargement of the neural foramen at that level.

Barium contrast studies of the gastrointestinal tract showed the presence of a large left lower quadrant abdominal mass extrinsic to the bowel. A total myelogram demonstrated a large intradural filling defect at the level of C_1-C_2. Two smaller filling defects were seen at the level of T_6 and T_9 with multiple small defects noted in the lumbar region.

A cervical laminectomy disclosed two intradural masses compressing the spinal cord at the level of the second cervical vertebra. The larger of the two tumors measured 4 cm in diameter. Both tumors were removed, and microscopic examination revealed interlacing bands of collagenous tissue and axones with a focal plexiform pattern typical of a neurofibroma.

Within ten days following decompressive laminectomy, the muscular weakness of the left leg had improved, and the hyperreflexia of the right lower extremity as well as the Babinski's sign had disappeared. Two weeks later, an abdominal exploration revealed a mass posterior to the left psoas muscle. The mass was removed *en bloc*. It was not possible to determine its anatomical origin. The mass weighed 470 gm and measured 15 x 7 x 6 cm. Microscopically, the tissue consisted of several areas of loosely packed spindle cells of varying size and shape, without evidence of mitosis, and other areas of marked cellularity in which nuclei were large, pleomorphic, and contained numerous mitotic figures. These findings are characteristic of a neurogenic sarcoma. Within several weeks following the spinal and abdominal surgical operations, the patient developed communicating hydrocephalus. Surgical shunting of the cerebrospinal fluid to the peritoneal space was effective in reducing the increased intracranial pressure. The patient died at home on May 20, 1972; no autopsy was performed. A massive regrowth of the abdominal tumor had been evident during the last three months of life.

Comment

Multiple neurofibromatosis frequently may be a relatively benign disease manifested only by cutaneous pigmentation.[2] However, sarcomas may occur in association with this disease and alter the prognosis considerably. Von Recklinghausen, in his original description of multiple neurofibromatosis, reported the occurrence of a jejunal tumor which "demonstrated internal degeneration," thus suggesting that neurofibromas may undergo sarcomatous degeneration.[4]

Neurogenic sarcomas may occur sporadically,[5] but usually arise in patients with multiple neurofibromatosis.[6–7] Hosoi[9] reported a 13 per cent incidence of sarcoma in patients with multiple neurofibromatosis, and Preston[2] noted a 16 per cent incidence. Other authors believe these figures to be excessively high on the grounds that examples of serious manifestations of a disease are more likely to be reported in the literature.[7] D'Agostino[3] noted a 3.1 per cent incidence of associated sarcomas of peripheral nerves or somatic tissues in 678 patients with multiple neurofibromatosis. Although conflicting data exist regarding the precise incidence of sarcoma in multiple neurofibromatosis, the third to fifth decades are the most vulnerable periods of life for sarcomatous changes to occur, and both sexes are affected equally.[3, 9]

The most common clinical feature of neurofibromatosis complicated by sarcoma is the sudden, rapid growth of a pre-existing tumor.[3, 6, 10] D'Agostino[3] has emphasized that local pain is a frequent manifestation of the enlarging mass. Numbness, tingling, and motor weakness are rare.[11] Preston[2] has found that the age of appearance of the neurofibromas, the incidence of a positive family history of multiple neurofibromatosis, the number and distribution of neurofibromas, and the number of areas of pigmentation are approximately the same in patients who develop sarcomas and in those who do not.

Sarcomas complicating multiple neurofibromatosis commonly are thought to be derived from malignant degeneration of a previously existing neurofibroma.[8, 9, 11–13] However, of the 21 malignant tumors associated with multiple neurofibromatosis reported by D'Agostino, only six were found to originate in a nerve trunk. The remaining 15 showed no gross or microscopic evidence of having nerve trunk origin, and apparently arose in somatic soft tissues independently of nerves.[3]

Sarcomas arising from neurofibromas progressively increase in size and metastasize to distant organs, the lung being the most common site.[1, 14] At the present time, surgical removal of the tumor is the

most effective form of treatment.[13-16] Postoperative recurrences of the tumor following gross total removal have been reported in 20 to 30 per cent of the cases,[15, 16] and these recurrences tend to be more anaplastic than the original tumor. Radiation therapy has not proven to be of any benefit in the treatment of neurogenic sarcomas.[2, 11, 13-15] A search of the available literature has failed to uncover any reports concerning the treatment of these tumors with chemotherapeutic agents. A personal communication to the author has indicated that chemotherapy, employing a combination of adriamycin and dimethyl triazeno imidazole carboximide, has been effective in reducing the tumor size in three of the five patients with neurogenic sarcoma.

The prognosis for patients who develop sarcomas is poor. In one series of 21 patients, only four of the 13 patients treated by surgical excision of the tumor were alive five years following treatment. All eight patients who received no treatment were dead within five years of the appearance of the tumor.[3] Vieta and Pack[15] reported a 30 per cent five-year survival irrespective of the type of treatment.

Early detection of such tumors by frequent physical examination and radical surgical excision of any rapidly enlarging mass in a patient with multiple neurofibromatosis may be expected to increase the survival rate of patients with this neoplasm.

Summary

The clinical data of a patient with von Recklinghausen's neurofibromatosis who developed an abdominal sarcoma were presented. Sarcoma arising in preexisting neurofibromas represent the most serious complication of this generalized disease. Radiation therapy is of no benefit in treatment, and the experience with chemotherapeutic agents is limited to only a small number of cases. Early detection followed by radical surgical excision of these tumors is, at present time, the only effective form of therapy.

References

1. Herrmann, J.: Sarcomatous transformation in multiple neurofibromatosis. *Ann. Surg.* 131:206, 1950.

2. Preston, F. W. *et al.:* Cutaneous neurofibromatosis: Clinical manifestations and incidence of sarcoma in 61 male patients. *Arch. Surg.* 64:813, 1952.

3. D'Agostino, A. N. *et al.:* Sarcomas of the peripheral nerves and somatic tissues associated with multiple neurofibromatosis. *Cancer* 16:1015, 1963.

4. Wilkens, R. H.: Von Recklinghausen's neurofibromatosis. *Arch. Neurol.* 24:374, 1971.

5. D'Agostino, A. N. *et al.:* Primary malignant neoplasms of nerves in patients without manifestations of multiple neurofibromatosis. *Cancer* 16:1003, 1963.

6. Harkin, J. C. and Reed, R. J.: Tumors of the peripheral nervous system. Armed Forces Institute of Pathology, 1968, pp. 107-120.

7. Russell, D. S. and Rubinstein, L. J.: Malignant neurofibromas in *Pathology of Tumors of the Nervous System,* ed. 2. Baltimore, Williams & Wilkins Co., 1963, pp. 242-257.

8. Jackson, A. H.: Three cases of multiple neurofibromatosis with malignant degeneration. *J. Nerv. Ment. Dis.* 78: 58, 1933.

9. Hosoi, K.: Multiple neurofibromatosis. *Arch. Surg.* 22:258, 1931.

10. Charache, H.: Multiple neurofibroma with a sarcomatous transformation and skeletal involvement. *Arch. Derm. Syph.* 40:185, 1940.

11. Stewart, F. W. and Copeland, M. M.: Neurogenic sarcoma. *Amer. J. Cancer* 15:1235, 1931.

12. Miller, A.: Neurofibromatosis. *Arch. Surg.* 32:109, 1936.

13. Charache, H.: Neurogenic sarcoma. *Amer. J. Surg.* 41:275, 1938.

14. Kramer, W.: Tumours of nerves, in *Handbook of Clinical Neurology,* Part II, P. J. Winken and G. W. Bruyn (eds.), New York, American Elsevier Publishing Co., Inc., 1971, pp. 446-453.

15. Vieta, J. O. and Pack, G. T.: Malignant neurilemomas of peripheral nerves. *Amer. J. Surg.* 82:416, 1951.

16. Stout, A. P.: The malignant tumors of the peripheral nerves. *Amer. J. Cancer* 25:1, 1935.

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KUMC Trauma Conference

Point-Blank Shotgun Wound of the Abdomen

Edited by FREDERICK W. RECKLING, M.D. *and*
ARLO S. HERMRECK, M.D., ***Kansas City, Kansas***

Mr. Simpson (3rd year Medical Student): The patient for presentation is a 40-year-old white male who arrived in the emergency room with a history of a self-inflicted shotgun wound 35 minutes prior to arrival. He was conscious and communicative, and said that he had been quite despondent for a period of three to four weeks over the loss of his job. He related that he had placed the butt of the gun on the floor, the muzzle into his abdomen, leaned over, shut his eyes, and pulled the trigger. The weapon used was a 12-gauge shotgun loaded with No. 8 shot.

On physical examination, the patient appeared cyanotic with a weak, thready pulse. His blood pressure on admission was 120/70 mm Hg, pulse rate of 110 beats per minute, respirations 32. His skin was cold and clammy. His chest was clear to auscultation and percussion, and good heart tones were noted. The point of maximal impulse (PMI) was in the 5th intercostal space in the midclavicular line. Examination of the abdomen revealed two large wounds with the site of entry being just to the right of the umbilicus. It was estimated that this wound was about 8 cm in diameter. The exit wound was just lateral and inferior to the wound of entry, and was about 12 cm in diameter. Bowel and omentum were protruding from both wounds *(Figure 1)*.

In the emergency room, a central venous pressure catheter and a Foley catheter were inserted. The abdominal wounds were covered with sterile dressings. Two liters of lactated Ringers and three units of whole blood were administered intravenously rapidly, with a good response in terms of urine output. An intravenous pyelogram (IVP) was then obtained, since the patient had microscopic hematuria and the kidney was in the path of the shotgun pellets. A psychiatric consultation was also obtained in the emergency room just prior to surgery.

Dr. Reckling: How was the patient brought to the hospital?

Mr. Simpson: By ambulance.

Dr. Reckling: Was bowel extruded through the abdominal wall at this time?

Mr. Simpson: Yes.

Dr. Reckling: Was there any coverage of the extruded bowel and omentum?

Mr. Simpson: Not until he was in the emergency room.

Dr. Thal: Did he call the ambulance, or did somebody else call?

Mr. Simpson: His wife found him in the living room and called an ambulance and the police.

Dr. Hahn: Why was a psychiatry consultation called in the emergency room?

Mr. Simpson: The man admitted that this was a suicide attempt, and we knew that he would need psychiatric followup. We thought this would be a good time for the psychiatrist to see the patient.

Dr. Reckling: Were the bowels and omentum allowed to remain outside the abdominal cavity?

Mr. Simpson: Yes. They were simply covered with a sterile dressing and bound lightly.

Dr. Reckling: Was the bowel perforated?

Dr. Pokorny: There was no evidence of perforation on gross examination in the emergency room.

Dr. Thal: Did the patient receive antibiotics preoperatively?

Dr. Pokorny: Yes, Kanamycin and Keflin.

Dr. Reckling: Was a nasogastric tube inserted?

Dr. Pokorny: No.

Dr. Hermreck: Did the patient have a kidney injury?

Dr. Pokorny: The IVP did not reveal any extravasation of dye, nor were any pellets noted on x-ray in the vicinity of the kidney on the right side *(Figure 2)*. As previously stated, he had microscopic hematuria (5-10 red blood cells in his urine on admission).

Dr. Reckling: Dr. Thal, what was your impression of this man's condition in the emergency room?

Dr. Thal: I saw him shortly after arrival in the emergency room, and while initially he was very hypovolemic, his blood pressure was normal, presumably because of the vasoconstriction. He was also quite responsive and his conversation was rational.

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Figure 1. Appearance of the abdomen at the time of admission to the emergency room. Note the severe hemorrhage and edema of the small bowel mesentery.

Figure 2. The intravenous pyelogram 10 minutes following the dye injection.

Dr. Reckling: What are your suggestions for management of extruded bowel, Dr. Thal? Do you merely place sterile dressing over the contents, or do you try to put them back into the abdominal cavity?

Dr. Thal: It would have been impossible to put them back in the abdomen because of the intense guarding. Also, I was under the impression that there were holes in this bowel, making it preferable that these structures be left exteriorized.

Dr. Maxwell: Did you think there were any major veins or arteries injured?

Dr. Pokorny: He certainly responded well to fluid administration and had no drop in blood pressure when the fluids were curtailed, so we surmised there were no major vessel injuries. Also, it looked like the shots traversed to the right and above the major vessels.

Dr. Reckling: What was done at the time of operation, Dr. Pokorny?

Dr. Pokorny: We made an incision between the entrance and exit wounds, and this was our means of gaining exposure to the abdomen contents. Upon entering the abdomen, the liver and right kidney were free of injury. There was a large segment of distal small bowel that was totally avulsed from the mesentery, and there were multiple perforations of the terminal ileum and right colon. The right gutter contained a large retroperitoneal hematoma. Evacuation of this large clot resulted in active venous bleeding. Further exploration revealed a hole in the vena cava and also in the right iliac vein. These were closed with 5-0 cardiovascular silk, and then attention was directed to the bowel. The devitalized and perforated small bowel along with the right colon and respective mesentery were resected and an ileocolostomy performed at the mid-transverse colon. The abdomen was then liberally irrigated with saline solution. Next, we began debriding this huge abdominal wall wound. After removing all devitalized tissue, a defect measuring about 10 x 14 inches was created *(Figure 3)*. We attempted to close this primarily, but without success. At this time, we elected to close the defect with Marlex mesh and consulted Dr. Masters, of the Plastic Surgery Service, in regard to coverage for the Marlex.

Dr. Thal: I would like to make a few additional comments. This was a sizable defect which was bounded by the rib cage above and the iliac crest below, and all the abdominal musculature and fascia in the area was either shot out or so injured that it required debridement. The fascia was intact medially, and this could be partially approximated. This

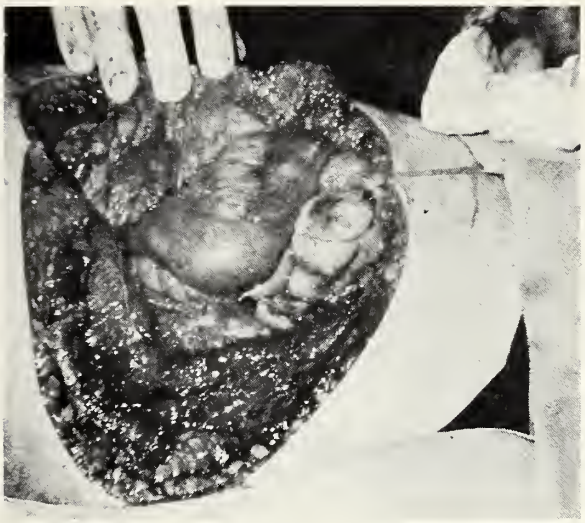

Figure 3. The extent of the abdominal defect following debridement. The chest of the patient is to the left of the photo and the pelvis to the right. The ileocolostomy can be seen in the center of the wound.

left a huge defect extending to the quadratus lumborum posteriorly, and almost to the midline medially.

Dr. Reckling: Do you want to describe how you provided coverage for this wound, Dr. Masters?

Dr. Masters: First of all, one cannot get a free graft to take over Marlex mesh, so we had to cover this wound with pedicle tissue. The problem encountered with pedicle tissue, particularly in the abdomen or in the chest wall, is its blood supply. It's a good adage that with pedicle grafts, one has to maintain approximately a one-to-one ratio of pedicle width to pedicle length to insure an adequate blood supply. We made a transverse incision at the level of the nipple line on the chest. This full-thickness flap of tissue was undermined and advanced downward, so that the lower margin of the flap could be sutured to the bottom of the defect. In order to mobilize a graft such as this, one has to destroy the perforator vessels from underneath. The viability of the graft is entirely dependent upon the lateral blood supply. In this instance, the outer lateral blood supply is critical since very little crossover occurs at the midline. Realizing that the blood supply was compromised to this tremendous pedicle, which was really three-fourths of the chest wall, the defect had to be closed without tension, since tension will further embarrass the blood supply. We subsequently applied ice packs locally to try to cut down the metabolic demand of this skin and soft tissue, until such time as it has an opportunity to adjust in its new position.

We're not 100 per cent sure that we are going to be able to maintain this closure. However, if we can maintain it long enough for granulation to come up from the omentum through the Marlex mesh, then we can graft directly if we lose part of the pedicle.

Dr. Reckling: Could you use the Crane principle of coverage in this situation?

Dr. Masters: One can. The Crane principle of coverage involved transferring adipose tissue only for coverage. A full-thickness pedicle graft is developed by making a semi-lunar type of incision. The graft is positioned over the defect and the underlying fat is allowed to adhere, heal, and develop its own blood supply from the most superficial tissue in the defect. After two or three weeks, the pedicle is reexcised, leaving a layer of viable fat that remains over the defect as a protective layer. This forms a nice granulation bed for future grafting. Of course, the pedicle is returned to its original position.

There was really no advantage, however, in using this type of coverage in this man, since the pedicle donor site will form granulation tissue in seven to ten days, and coverage can be provided by a skin graft.

Dr. Hermreck: Why create an extra wound on the man's chest? In children with large omphaloceles, silastic coated Marlex can be used to close the defect and ultimately be removed as the abdominal cavity enlarges.

Dr. Masters: We felt that we could hasten the healing of this large wound considerably by pedicle grafting, rather than relying on scarring and contracture for healing.

Dr. Hermreck: Dr. Thal, don't you feel the Marlex mesh will have to come out someday because of infection?

Dr. Thal: I think, if an adequate blood supply develops between the omentum and the pedicle graft which envelopes the Marlex mesh, we might get primary healing without a serious infection.

Dr. Reckling: Dr. Thal, would you have just approximated the skin only, leaving an abdominal wall defect, if possible in this patient, rather than resorting to Marlex mesh and the other procedures?

Dr. Thal: Yes. Then we could have come back later to repair the defect without the worry of infection.

Dr. Reckling: Why did you elect to do an ileocolostomy rather than a colostomy and ileostomy?

Dr. Thal: First, this would have been a proximal ileostomy, which is a very difficult thing to care for because of the large losses of fluid and electrolytes. As you know, most of his distal ileum was resected. Secondly, there is an open wound on the skin with foreign material in place inviting sepsis and more tissue breakdown, and a draining stoma would only complicate matters.

Dr. Reckling: Would anyone consider doing other than a primary anastomosis? Dr. Allbritten, would you care to comment?

Dr. Allbritten: I don't think under these circumstances one should create an ileostomy. There is really no reason to suspect that a bowel anastomosis with a good blood supply wouldn't heal and simplify postoperative care.

Dr. Kaplan: How vulnerable is the Marlex mesh to infection in view of the contamination of the area with fecal contents?

Dr. Thal: Certainly, the Marlex, or any foreign body, increases the susceptibility to infection, but there appeared to be very few other alternatives in this case. Strange as it may seem, Marlex mesh has proven to be a remarkably durable material in the face of infection, and we have seen several instances of healing over a Marlex prosthesis in the face of infection.

Dr. Kaplan: Would this be considered a high or low velocity type injury? Recently, in *The Journal of Trauma*, DeMuth reported that close range shotgun wounds were comparable to high velocity wounds, whereas long range shotgun injuries were low velocity wounds.

Dr. Pokorny: Dr. Kaplan is correct. A 12-gauge shotgun at very close range, or at the muzzle, has a total energy of about 2,250 ft/lb, whereas the 55-grain M-16 rifle used in Vietnam has a muzzle energy of only 1,250 ft/lb. Even at longer ranges, shotgun injuries with large slugs or large buckshot should be considered and treated as high velocity wounds.

Dr. Thal: He had an enormous amount of muscle destruction, comparable to what one would see with a high velocity rifle.

Dr. Miller: I think, one question that many of the students might have is, what is going to happen to all these hundreds of shots that are still present in this patient? Was any attempt made to remove all of these, Dr. Thal?

Dr. Thal: No attempt was made to remove any of the pellets.

Dr. Reckling: What does happen to these pellets? Do they become embedded in scar tissue?

Dr. Thal: Yes. Normally they don't give any trouble, provided they are not in a vital location. The interesting thing here is that, probably, some of these shot are still in this patient's inferior vena cava. It might be interesting to follow him with chest x-rays. We may pick them up in the lung or heart sometime.

Let's discuss this question about the effects of high or low velocity weapons in an injury of this type. One might be able to divide the injury in this patient into two components. The blast injury to the abdominal wall itself was more the type you see with a high velocity missile, creating extensive distant tissue destruction. The injury from the disseminated pellets was similar, however, to that seen with a low velocity missile. They simply exhibited the phenomenon one always sees with shot; a punctate wound without extensive distant tissue damage.

Dr. Reckling: Will those seal over, or is it necessary to resect the bowel perforated from the shot?

Dr. Thal: It is unsafe to rely on de novo sealing of these pellet perforations. If one has only a few pellet wounds, local closure is adequate. With multiple perforations as was seen in this case, resection is preferable.

Dr. Reckling: Dr. Pokorny, how is the patient now?

Dr. Pokorny: He is doing very well; his vital signs are good, he is alert, urinary output has remained stable.

Dr. Kaplan: If this Marlex mesh closure dehisces, what would be the future plans?

Dr. Pokorny: Hopefully, enough adhesions have

(Continued on page 215)

Figure 4. The wounds 2 weeks after split-thickness mesh grafting. The upper wound adjacent to the nipple is the pedicle donor site. The lower wound is the area of pedicle necrosis. There is a small draining sinus in the medial portion of the lower wound.

Student THESIS

Diagnosis of Streptococcal Pharyngitis

STEVEN C. BRUNER, M.D., ***Wichita***

Introduction

THE MEDICAL STUDENT is constantly being deluged with information, diagnostic and therapeutic pearls, as they are called, which for the most part he accepts as truth. One such dictum states that, any child presenting with a sore throat should have a throat swab done to insure correct diagnosis and justify the ten days of penicillin therapy necessary to prevent the most serious complication of streptococcal pharyngitis, rheumatic fever.

In talking to practicing physicians, however, it became this author's impression that this, in fact, is a very uncommon practice. To get a broader sample of opinion on the question, 100 members of the Kansas Academy of Family Practice were surveyed at random, with 80 replies received. The questions to these practitioners had to do with the frequency of their use of throat cultures, and whether they generally waited for the results of culture for their final therapeutic indication. They were also asked about the type of laboratory facilities used (office, hospital, private, commercial, or state) and the cost to the patient for the culture. Finally, these physicians were asked to estimate what percentage of the sore throats seen in their office were diagnosed as bacterial and treated with antibiotic therapy. The complete results of this will be presented throughout this paper or may be referred to in *Table I.* At this point it may be said that the author's impression was confirmed. Indeed, only 2.5 per cent of the physicians surveyed do throat cultures as a routine procedure in cases of pharyngitis; only 13.8 per cent do them in more than 50 per cent of cases; 46.2 per cent in less than 50 per cent; and 37.5 per cent rarely or never.

So here seems to exist a dichotomy of opinion between university and practice. The question is, why? What are the drawbacks to the routine use of this procedure and what are its advantages? Are the drawbacks insurmountable? In essence, is the routine use of throat culture in the diagnosis of pharyngitis practical? The purpose of this paper will be to attempt an answer to this question of practicality. Each of the common objections to the use of routine throat culture will be considered in turn for their validity and the possibility of overcoming them. Finally, the pros and cons will be weighed and some concrete guidelines for practical use in this area will be made.

Objection 1

My clinical judgement is accurate enough in the diagnosis of streptococcal pharyngitis.

Experienced practitioners, when interviewed, regularly say that as young physicians they started out doing frequent cultures, but as they saw hundreds of cases of strep throat, they learned to recognize the syndrome. Indeed, many times the culture results seemed erroneous, being positive in very mild cases, and negative in a classical clinical case of streptococcal pharyngitis. Unfortunately, the literature and many well designed studies do not support these observations.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the School.

Dr. Bruner is now a Resident in Family Practice at St. Joseph's Hospital, Wichita.

TABLE I

A SURVEY OF 100 FAMILY PRACTITIONERS WITH 80 REPLIES

1. Frequency of culture	
All patients with sore throat	2.5%
Greater than 50% of above	13.8%
Less than 50%	46.2%
Rarely or never	37.5%
2. Percentage withholding antibiotics pending culture results.	
Withhold	3.7%
Treat by clinical impression	96.3%
3. Type of laboratory facility used for culture	
Office	36.1%
Private commercial	18.0%
Hospital	39.0%
State	6.6%
4. Cost to patient for culture	
Average	$5.75
5. Estimated percentage of patients presenting with sore throat treated with antibiotics	
Average	61.6%
6. Cost to patient for culture by lab facilities used	
Office average	$3.70
Private commercial average	$8.80*
Hospital average	$6.37
State†	free

* Some sensitivities included.

† Two comments noting delay in receiving results from state lab.

The problem lies in the wide range of variation in the syndromes of streptococcal and viral pharyngitis, and more especially in their considerable overlap. It has been stated by many observers that the atypical or mild case of streptococcal pharyngitis is clinically indistinguishable from the viral form, and this statement is backed up by many excellent studies. Breese,[2] in a pediatric series of 1,199 patients with a chief complaint of sore throat, was able to recognize only 69 per cent of the strep, even though he overdiagnosed the streptococcal etiology by one third. Many others have attempted to better this figure without success, although many have done worse, including studies by Randolph,[10] who, using an Apgar-like system giving point values to various symptoms and physical signs could exclude a streptococcal etiology and the need for antibiotic therapy with only 64 per cent accuracy; and Stillerman,[12] who could make the correct diagnosis only 44 per cent of the time.

The source of difficulty in the clinical diagnosis of strep throat is well demonstrated in a study by a group of family practitioners in Nebraska,[6] especially pertinent because of the geographical proximity to our area. In a consecutive study and culture of 211 patients with a chief complaint of sore throat, only 12 per cent were found to be positive for beta hemolytic streptococci. Careful data was kept on the incidence of three of the main physical signs of strep pharyngitis: fever, exudate, and cervical lymphadenopathy, and their predictability for a streptococcal etiology were figured.

In the winter season, when the incidence of strep is highest, it was found that only 12 per cent of febrile sore throats were streptococcal; that only 18 per cent of sore throats with swollen nodes were streptococcal; and that only 25 per cent of sore throats with exudate were streptococcal. From these statistics it is easily seen why the common clinical practice is to overdiagnose strep and, therefore, overprescribe penicillin. A similar study was done by Stillerman and Bernstein[11] on a pediatric population, where only a frequent lack of physical signs in streptococcal infection was shown. In patients with a sore throat cultured positive for strep, 90 per cent had at least a mild fever (as did 65% of strep negative patients), but only 25 per cent had any exudate, and only 29 per cent had tender adenopathy. Indeed, almost one third of all cases of strep throat are of such a mild nature as to be missed completely when using only clinical criteria.[9]

What, then, is the significance of inaccurate diagnosis in this area? The obvious consequence of missed cases of strep throat is that in each untreated case lies the possibility of rheumatic fever as a complication, and, less seriously, acute glomerulonephritis. The more common happening, using clinical diagnosis alone, is overdiagnosis and abuse of penicillin. Indeed, in the survey mentioned earlier, the average Kansas family practitioner treated 61 per cent of the patients presenting with a chief complaint of sore throat, although Allen and Diehl,[1] in a Kansas study of such patients could establish by culture a streptococcal etiology in only 11.5 per cent. The problem of penicillin abuse is a much more subtle one than that of rheumatic fever, but is nevertheless of very real significance. In addition to the rashes, hives, laryngeal edema, and anaphylactic shock seen in sensitive persons exposed to penicillin intramuscularly, many other persons are unnecessarily receiving the exposure and usually multiple exposures which initiate the process of sensitization. People who may later desperately need penicillin will be unable to receive it because of sensitivity unnecessarily induced by the treatment of viral pharyngitis. Estimates that as much as 10 per cent of the population are sensitive to penicillin have been made, and this figure is probably higher in the younger

population who have had penicillin available to them all their lives.

Conclusion

The literature indicates that diagnosis of pharyngitis by clinical data alone results in much overdiagnosis of strep with consequent abuse of penicillin, and an ever-increasing incidence of penicillin allergy. In addition, studies indicate that as many as 33 per cent of the cases of strep throat are of a mild nature, and often escape treatment if not picked up by culture. The result of this is the fact that in 1969, there were still over 3,000 new cases of rheumatic fever nationwide—3,000 new cases of a basically preventable disease.

Objection 2

The easily missed mild cases of strep pharyngitis aren't rheumatogenic.

For many years, it was accepted as fact that 3 per cent of untreated cases of streptococcal pharyngitis were followed by rheumatic fever, and that the severity of the infection correlated poorly with its rheumatogenicity. In recent years, however, these findings, originating from studies done on very virulent epidemic strains of streptococci at Great Lakes Naval Station, have been disputed. Two studies have been done, by Siegel *et al.*,[12] and by Stollerman and Pearce,[13] in which large series of children in clinic populations with mild nonexudative pharyngitis cultured positive for Group A beta hemolytic strep, were followed without treatment. A very low rate of complication with rheumatic fever or nephritis was seen, the figure for rheumatic fever being set at 0.33 per cent by Siegel *et al.* Stollerman and Pearce had no rheumatic fever in their series of 786.

These studies seem to indicate that in the low socioeconomic class, urban environment at least, endemic strains of streptococci exist which possess low virulence and low rheumatogenicity. The low virulence of these strains as well as the crowded urban conditions in low income neighborhoods probably were responsible for a high carrier rate, as evidenced in the fact that only 45 per cent of children cultured positive showed significant increase in anti-streptolysin titers. The epidemiology of streptococcal strains as found in differing geographical and social conditions varies widely, however.

In contradiction to these studies showing very little rheumatogenicity in mild streptococcal pharyngitis is a study by Czoniczer *et al.*,[3] in which he reviewed the history of 105 new cases of rheumatic fever, none of which had received adequate therapy with ten days of penicillin. Of the 69 patients who were never seen by a physician for their pharyngitis, 16 had not noticed any symptoms at all; 38 recalled only a mild sore throat; and 15 had a fairly severe infection and ignored it. Thirty-six patients had symptoms of pharyngitis which brought them to a physician. Fourteen of these were misdiagnosed as viral infections, and 22 were diagnosed correctly but inadequately treated. In these 105 cases who escaped adequate treatment and developed rheumatic fever, 64 per cent of the time the infection was mild or subclinical in nature.

Conclusion

The incidence of rheumatic fever following the common, mild, endemic type of streptococcal pharyngitis is probably much lower than was formerly thought. However, the potential most certainly does exist in the mildest strep throat for rheumatic fever with its morbidity and mortality. This potential must be recognized and the seriousness of it emphasized to the parents. If leukemia were as preventable as rheumatic fever, every effort would be made to eliminate it completely. The mortality and morbidity of rheumatic fever demand similar respect.

Objection 3

Throat cultures are an inaccurate diagnostic tool because of the high percentage of carriers of beta hemolytic strep.

The definition of the carrier population has long been a problem for those wishing to use throat culturing as the final indication for antibiotic therapy. It is true that in the northern, low socioeconomic, school age, urban population one can at random culture beta hemolytic strep from 40 per cent of the throats.[13] This percentage includes those with active mild or subclinical infection and those recovering from infection, the acute stage of which may have been three to four weeks earlier, as well as the true carriers. The only real way to distinguish between the carrier state and active infection is by the use of serial antibody titers.

Most studies on private patient populations, however, reveal a much lower carrier rate, ranging from 8 per cent in a study by Evans and Elliot,[4] and 6 per cent in a military dependent population cultured by Margileth,[7] to 2 per cent in 150 well Rochester, N. Y., school children cultured by Breese.[2] In the Casper, Wyoming, Streptococcal Control Program, Phibbs *et al.*[8] emphasized the impossibility of distinguishing between carrier and infected, and he treated all those with positive cultures. By means of this practice, enforced by state health code and regular weekly school-based checks for pharyngitis, the city of Casper was able, over a fifteen-year period, to reduce the total streptococcal isolation rate in its school children from 20 per cent to 1.8 per cent. During the same period, the decreased incidence of

active infection is shown in the fact that only 30.8 per cent of Casper school children demonstrate Group A antibody, a figure approximately half that of other communities in the same area. The incidence rate of rheumatic fever has also decreased concomitantly.

Conclusion

The carrier state is poorly defined and impossible to identify without expensive serial immunologic tests. In practice, the patient with mild pharyngitis and a positive culture for beta hemolytic strep must be presumed to have bona fide strep throat. Since even the carrier state is thought by most experts to be communicable, treatment in this case can be justified as epidemiological control, the effectiveness of which is well demonstrated by the Casper study.

Objection 4

Throat cultures take too much time and the patients want immediate therapy.

The taking of a throat culture is normally done in order to indicate antibiotic therapy, although it is sometimes helpful in epidemiology as well. Since bacterial pharyngitis is almost 100 per cent streptococcal[6, 10] (except in neonates), and since the beta hemolytic streptococcus is exquisitely sensitive to penicillin, treatment with long acting penicillin makes culture somewhat superfluous. If the pharyngitis is bacterial, the problem is solved; if not, the penicillin is wasted. Either way, the culture results will change nothing. One of the main purposes of any throat culture then is to prevent penicillin abuse, and to do so the physician must generally withhold therapy pending results of culture. It is surprising, therefore, that although 62.5 per cent of Kansas family practitioners do at least occasional throat cultures, only 3.7 per cent generally withhold therapy pending results. The reason generally given for this practice is that cultures take too much time and the patient resents not being treated on the first visit.

From a strictly medical viewpoint, time is not much of a factor. A culture incubated overnight will suffice to reveal the characteristic beta hemolysis of beta hemolytic strep, and this is generally enough indication for therapy, as 80 to 90 per cent will be Group A when recultured with the bacitracin disc.[4, 7, 13]

Because streptococcal pharyngitis is generally a self-limited disease, the duration of the acute phase averaging two-three days,[6, 9] penicillin actually does very little toward shortening the period of discomfort to the patient. The chief reasons for its use are for epidemiological control and the prevention of the nonsuppurative complications of rheumatic fever and acute glomerulonephritis.[8] Neither of these objectives is significantly endangered by an overnight wait for culture results. Indeed, it has been shown that adequate therapy as long as one week after onset of symptoms will reduce the predicted rheumatic attack rate by 98 per cent, and even after three weeks 42 per cent can still be prevented.[9] The occasional suppurative complications (sinusitis, otitis media, mastoiditis, and peritonsillar abscess) do not generally occur in the first 72 hours, and their incidence would not be increased by the overnight wait for culture.

So the problem then is not a medical one, but one of reeducation of the patient. The patient must be made to understand several points, including: (1) Only a very small percentage of sore throats are bacterial in nature requiring antibiotic therapy; (2) Abuse of penicillin creates its own risks and problems; (3) On many occasions it is impossible to differentiate between bacterial and viral pharyngitis. A short mimeographed sheet of information of this type may be helpful at first. Many physicians have found that with a little effort on their part, their patients and parents of patients can be educated to come to the office requesting a throat culture, rather than a penicillin shot.[8, 10] After this one visit, most patients will need only to call the physician's office the next morning and find that their culture was negative. Those with positive cultures can then be asked to return for their penicillin shot. They need not be seen by the physician himself. Symptomatic therapy, including analgesics, antipyretics, gargles, and analgesic lozenges and gums may be given at the initial visit to all patients if desired, and in the occasional severe case, with severe systemic symptoms demanding immediate antibiotic therapy, procaine penicillin G may be administered for quick blood levels. The long acting penicillin may be given in one to two days at followup visit if the culture is positive.

Conclusion

Only in the occasional severe case, for relief of symptoms, need antibiotic therapy be given before results of culture are available. As a general rule, therapy should be only symptomatic, pending culture results, and care should be taken to educate the patient as to the reasons for this procedure.

Objection 5

Throat cultures cost too much to be done routinely.

Most physicians who complain about the cost of throat cultures have in mind the rather inflated prices charged by private commercial laboratories and hospitals. The survey revealed that the average

cost to the patients of Kansas family practitioners for a throat culture was $5.75. This included 39 per cent of the physicians who charged an average of $6.35 for a culture done by a hospital laboratory, 18 per cent who used a private commercial laboratory and charged an average of $8.80 (some included sensitivities), 36 per cent who had an office laboratory and charged an average of $3.70, and 6.6 per cent who used the free state laboratory (and often waited several days for results). Most people would agree that an average cost of $5.75 per culture would be prohibitive for routine use, but a throat culture for strep need not cost that much.

Several characteristics of streptococcal pharyngitis make it an ideal subject for office bacteriology. First, beta hemolytic streptococcus is the only common bacterial pathogen of the pharynx (except in neonates).[6, 10] Therefore, it is not necessary to identify any of the many contaminants of the throat, but only to rule out the presence of beta hemolytic strep. This is easily done because of the characteristic clear zone of hemolysis surrounding the small opaque colonies. Grouping with the bacitracin disc need not be done routinely, as 80 to 90 per cent of beta hemolytic strep cultured are Group A.[4, 7, 13] Because beta hemolytic groups other than A are contaminants and usually reveal only a few scattered colonies, grouping should probably be done in instances where fewer than five colonies of beta hemolytic strep were found on the original plate.

A 95 per cent accurate procedure of swabbing and streaking, as outlined by Wannamaker,[14] is a simple one, and can easily be done by the nurse. A sterile cotton swab is rubbed on the affected areas of the pharynx including areas of exudate and both tonsils. The tongue is to be avoided. In very young children, where streptococcal nasopharyngitis is common, a nasal swab may also be helpful. The swab is then immediately rolled across approximately one-sixth of the area of a commercial sheep blood agar plate. This material is then streaked for isolation without reentering the inoculum with a sterile inoculating loop. The loop is then stabbed into the blood agar to facilitate reading of subsurface hemolysis. The plate is incubated overnight in an incubator at 37C (98.6F) and read in the morning against a light for the characteristic beta hemolysis. Care should be taken to distinguish beta hemolysis from the common green or alpha hemolysis of contaminants. Comparison plates with alpha and beta hemolysis may be used at first if necessary, samples of alpha and beta strep being obtained from a nearby commercial or hospital laboratory. If grouping is desired, transfer and streaking of an isolated beta hemolytic colony is accomplished with a sterile inoculating loop.

A commercial bacitracin disc is then placed in the area of streaking and the plate incubated overnight. Inhibition of growth around the disc indicates Group A strep.

Swabbing and streaking by the nurse should take only a couple of minutes, and reading of the previous day's plates by the doctor or trained nurse should take less than five minutes a morning. The only equipment required is an alcohol lamp, a wire inoculating loop, and an incubator, all of which can be obtained from many supply companies for less than $100.00. Consumable materials include the commercial sheep blood agar plates and bacitracin discs. In addition to the throat swabs, cultures from infected wounds in children can be done with this procedure and equipment to rule out streptococcal impetigo, a common cause of acute glomerulonephritis in children.

For these inexpensive materials and simple procedure, Fairbanks[5] has suggested a charge of $2.00 per culture. This seems reasonable for both doctor and patient and would compare favorably with the cost of treatment, approximately $2.75 for a shot of Bicillin, $5.00 for ten days of penicillin V, and approximately $8.00 for ten days of erythromycin.

Conclusion

A streptococcal screen type throat culture can be done in the office with minimal time expenditure by doctor and staff, and at a cost to the patient generally lower than that of ten days of antibiotic therapy.

Summary and Recommendations

The physician practicing good medicine must be concerned not only with the scientific worth of a procedure such as throat culture, but with its economic aspects as well. In this paper, an attempt has been made to reconcile the scientific recommendations of the academician with the practical objections of the practitioner. It is concluded that routine throat culture in cases of pharyngitis can be both scientifically worthwhile and practical as well. The following recommendations are made with these dual objectives in mind:

1. Throat cultures should be done as a routine on all patients presenting with a chief complaint of sore throat.

2. In all but the most severe cases, antibiotic therapy should be withheld pending results of culture and its place taken on the initial visit by symptomatic therapy.

3. Patients and parents must be educated to expect throat culture, and not penicillin, on the initial visit, and the reasons for this should be adequately explained to them. They should also be

educated as to the serious potential of the mildest pharyngitis, and encouraged to come in for culture in all cases of sore throat.

4. All routine throat cultures for strep should be done in the office, so that cost to the patient can be kept to a minimum and the results obtained as soon as possible.

5. Cultures of less than five colonies should be grouped with the bacitracin disc preceding antibiotic therapy to rule out beta hemolytic groups other than A.

6. All patients with positive cultures of greater than five colonies, and those of fewer than five colonies proven to be group A, should be treated with ten days of antibiotic therapy, preferably benzathine penicillin G intramuscularly, 600,000 units in children of under 60 pounds, and 1.2 million units in larger children and adults. Oral penicillin V, 250 mg four times a day, may be substituted if necessary, but care should be taken to impress the patient with the importance of taking the entire ten-day course. Erythromycin 250 mg four times a day for ten days may be used as an alternative in penicillin sensitive individuals.

7. Approximately 9 per cent of family members will be carriers of the infecting organism,[7] and should be cultured and treated if positive to prevent reinfection of the patient and further spread of the disease.

These guidelines can provide the practitioner with a course of action in dealing with pharyngitis that will be both diagnostically rewarding and economically acceptable. Furthermore, the constant vigilance of both physician and patient can reduce the incidence of rheumatic fever far below the 3,000 cases recorded in 1969, and go a long way toward reducing rheumatic fever to its rightful place alongside diphtheria and polio as a common childhood disease—of the past.

References

1. Allen, R. E.; Diehl, A. M. and Anderson, N. W.: Streptococcal infection. *J. Kansas Med. Soc.* 68:96-101, 1967.

2. Breese, B. B. and Disney, F. A.: The accuracy of diagnosis of beta hemolytic strep infections on clinical grounds. *J. Pediat.* 44:670-673, 1954.

3. Croniczer, G.; Lees, M. and Massell, B. F.: Streptococcal infection: The need for improved recognition and treatment for the prevention of rheumatic fever. *New Eng. J. Med.* 265:951-952, 1961.

4. Evans, A. S. and Elliot, C. D.: Acute pharyngitis and tonsillitis in University of Wisconsin students. *JAMA* 190: 699-708, 1964.

5. Fairbanks, W. L.; Holsclaw, M. E.; Krickbaum, J. H. and Scott, P. M.: Routine throat culture for beta hemolytic strep as a diagnostic aid in rural family practice. *Nebraska Med. J.* 54:592-598, 1969.

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Vox Dox

Vox Dox Editor:

In October 1971, Mrs. K.'s now deceased husband had a case of hives, for which he was hospitalized for about one week. Medicare refused to pay the claim because their reviewing board decided "hives" was not the type of disease that needed hospitalization. Mr. K. had suffered three coronary occlusions, on several occasions had cardiac decompensation with some evidence of renal insufficiency, and a mild diabetic condition, all of which was in the record.

In November 1972, Mrs. K. had requested a hearing on her deceased husband's hospitalization. There were so many such Medicare cases to be heard that she could not get a hearing date until March 7, 1973. This fact alone is significant. There is something wrong with the system when there are that many such cases on the docket.

The attorney asked Mrs. K. if she had any new evidence to present. She presented handwritten daily bedside notes which she had written the week before her husband's hospitalization; a copy of a letter I had written to Mr. W., administrator of the hospital; and Mr. W.'s reply to her; and a copy of her husband's death certificate.

Mrs. K.'s testimony was taken first, then mine. I presented nothing that was not already in the record —essentially that he was a so-called "custodial case" and bed patient at home, but when he developed hives and became weaker under home care he was hospitalized, and, therefore, fell into the category designated as allowable under "Medicare Care law." I asked at this point, "How could Medicare reason that he didn't qualify for Medicare under the 'law' as quoted?" The attorney replied that he could not speak for Medicare on such a situation.

After hearing the testimony, the attorney said: "I am going to reverse the decision of Medicare. It is my opinion this case does qualify under Medicare regulations." "Of course," he added, "Medicare has a right to appeal this case to the reviewing board in Baltimore, so I have no control over what they might decide about this matter."

I asked, "Is it not true, that if this case was presented in a regular court of law, all the evidence Medicare has used to make their decision not to allow this claim would be considered in legal terms as "hearsay" and, therefore, would not be allowed as evidence?"

His answer was, "Yes, you are right about that."

I then said, "I thank you very much for this decision you have made here today, even though the case may go on to Baltimore and your decision be

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The President's Message

After being exposed over a fairly long period of time to the various methods which are being used by the governmental factions in an attempt to control the health care delivery system, I would offer these comments.

1. There is no longer any doubt that politicians, hospital administrators, sociologists, and bureaucrats want to tell us how we are to organize our delivery system and how we are to be reimbursed for the delivery of our care.
2. Recent passage by Congress of PL. 92-603 (HR-1) puts timed limitations on establishment of Professional Standards Review Organizations (PSRO) on a regional basis. We no longer have the time to delay forming an operational Foundation for Medical Care in Kansas. If you do not belong, do it immediately.

I am convinced that these laws, rules, and regulations will control the cost factors of health care (but may not necessarily reduce them). I am just as convinced that the quality of health care given our patients will be reduced markedly as the end result of governmental controls.

Thomas F. Taylor

President

The Beneficent Subsidy

The medical and pharmaceutical professions constitute a unique relationship which the laity tends to regard with some suspicion. It occurs to us, therefore, that one significant feature of that relationship warrants some comment for the reason that while it superficially suggests the capability for ulterior influence, it actually functions as a beneficent process for both parties—and indirectly and more importantly the laity. That this should be says something about the character of both parties. We are thinking, in this connection, of the part the pharmaceutical industry plays in medical education. We do not include at this moment the research foundation maintained by the Pharmaceutical Manufacturers Association, although it is certainly worthy of comment, or the support of formal education, symposia, and so on, but the fact (which is evident by scanning virtually any medical periodical) that the pharmaceutical industry is underwriting the bulk of medical communication.

In the course of a recent week, we received copies of three new "throwaways" or, more politely, controlled circulation journals. This brings to a total of almost 30 the number of such publications we receive each month (some more than once a month) without instigation on our part or payment of a subscription fee. In addition, we receive at least a dozen to which we subscribe either directly or by some organizational subsidy (even as this one). The fact that this constitutes an indigestible volume of medical communication is of no small interest, but this is for another time. The thing that is of interest is that, since advertising is the life blood of the periodical publishing field, the pharmaceutical companies, through their advertising. are providing for the physician this important form of medical education.

There are, of course, significant and desirable differences between the controlled circulation and subscription journals, but again more of that another time. Their common denominator is the financial support that permits both to exist. Even the subscription journals could not survive (at least not without considerable change of form) without pharmaceutical advertising, since the subscriptions cover only a fraction of the publishing costs. This one, for example, derives no more than 25 per cent of its publication cost from subscription income. If we had no advertising revenue, we doubt that the House of Delegates would authorize a four-fold increase in that genteel lug we call our subscription levy in order to support us in the style to which we are accustomed.

There are a few journals which carry little or no advertising but their subscription rates reflect this and, furthermore, most are highly specialized or research-oriented publications, and you can bet that most of the subscription fees are coming out of some organizational budget rather than individuals' pockets. But if anyone wonders where the population explosion went, it moved into the throwaway field. One would think there would be a point of diminishing returns in the release of new journals, but the continually growing list indicates that the purveyors think we have not yet reached the saturation point. Each new arrival only emphasizes once more the fact that the pharmaceutical industry provides the physician with the great bulk of his continuing education and information.

Now this is the stuff from which a fearless investigative reporter could paint (and has) a sinister picture of a profit-mad pharmaceutical cartel prostituting the willing physician physically and intellectually at the expense of his unprotected patients. It is inconceivable to such minds that any commercial effort of such magnitude could be maintained without some ulterior motive and subversive intent. As a matter of fact, that is the point: it *is* rather surprising that such obvious and pervasive financial support of the interests of the physician is accomplished with so little intrusion of the pharmaceutical manufacturers into the control of medical thought and effort.

We are not referring to the industry's promotion of its products. Of course, they call the attention of the physician to these items at every opportunity. Fan through a journal—particularly the controlled circulation type—and where will you stop? Probably not on Dr. Bimbelberger's learned treatise on

strongyloidiasis in the Cayapo Indians, but on someone's advertisement for an antibiotic or a new oral contraceptive. The advertiser would be glad to have you read the advertisement even unto the finest print, but he knows you picked up the periodical for its textual content. He is counting more on a subliminal approach, the hope that your eye will momentarily catch the name of his product, and the next time you pick up a prescription pad, that name is going to be a little closer to the top of your mental heap when you start to write.

We are referring, rather, to the scientific and editorial text and the absence of efforts of the pharmaceutical manufacturers to influence physicians in this area. We get press releases from the pharmaceutical manufacturers extolling their virtues and expressing great willingness for us to write about them (just as we get them from dozens of other sources with the same self-interest). We have used them, and other publications have used them, when they served an informative purpose for the benefit of the physician. Maybe we are too relaxed to feel prostituted, but it seems to us worth emphasizing that the very potentiality for misuse of pressure makes it the more remarkable that it hasn't been so used.

This is what the cynics cannot understand and the point at which they underestimate the relationship. What they lose sight of is that fundamentally the great majority of physicians have the best interests of their patients at heart. They are not going to prescribe a medication because the color spread of one advertiser was prettier than another's—they base their choice upon the conviction that it is the best medication for the purpose. After all, if it is in the best interests of the patient, it is in the best interests of the physician as well.

The commercial aspect of the prescription business is unique. Not only is the commodity of different form and intent from any other item in the marketplace, but the producer advertises his product not to the ultimate consumer, the patient, but to the advocate who will prescribe it for the patient. Because this is quite a different concept from that applying to the promotion of automobiles or beer or lawn mowers or laundry soap, the cynics are incapable of understanding that the physician gains through the accomplishment of his professional obligation, not through some material subsidy by the pharmaceutical producer. The manufacturers, realistic businessmen that they are, know they are dealing with a peculiar breed which will judge their products by their therapeutic efficacy. They know that one of the best ways to get his attention, even briefly, is to keep him supplied with a lavish variety of medical reading material. And if this benefits the physician and ultimately the patient, they seem to feel it's not such a bad deal for themselves.—*D.E.G.*

Vox Dox

(Continued from page 206)

reversed. I consider this a great moral victory. We doctors have been accused many times of hospitalizing patients under Medicare when they really did not need to be hospitalized."

When I returned to the hospital, a "team" of Medicare inspectors were on hand. They took most of our time that afternoon, and they were back on Thursday. The hospital passed the inspection with flying colors. An official from Medicare Kansas City office was part of the team and one of the issues discussed was the Utilization Review Boards. He said any new utilization review plan submitted would not be accepted unless we had utilization reviews at least twice a month.

So, what does all this add up to? First, why should a physician be compelled to testify at a legal hearing to defend his right to practice high-quality medical care—(and winning)—only to have it possibly nullified by a higher court in Baltimore? And the government decision based on the flimsy, illegal procedure of "hearsay" evidence.

What sort of leadership and guidance does our Society have to allow itself to be illegally manhandled in such a manner?

Then, is not the concept of peer review, utilization review boards, etc., an illegal, unconstitutional procedure? If the Supreme Court says that abortion is strictly between the patient and a legally qualified physician, and *no one* has the *right* to interfere with this relationship, shouldn't this ruling be applied to *all* types of cases as well? Do our leaders have any reasonable explanation why there is such a discriminatory difference between an abortion case and all other types of cases?

If no fault can be found in this type of reasoning, don't you think the Medical Society should unitedly carry the concept of "peer" supervision to the Supreme Court on the premise that if "peer" supervision is unconstitutional in abortion cases it, therefore, follows that *all other* cases should have the *same rights*.

This is the third hearing at which we have testified and so far we have won every one. Why do we have to waste our time at such illegal, unconstitutional procedures?

A. S. Reece, M.D.
Gardner, Kansas

Medical-Legal Page

Policeman Died from Gunshot, Not from Malpractice

Physicians were found by a California jury not to be liable for the death of a patient brought into the hospital with a gunshot wound.

A Los Angeles police officer, aged 23, was shot by a robber and was taken to a hospital within 22 minutes. He was pronounced dead one hour later because physicians could find no vital signs after trying emergency procedures.

The widow and one-year-old son of the deceased filed a malpractice suit against the physicians, alleging that the iliac artery had been perforated and should have been operated on.

The physicians claimed that there was an avulsion of the artery and that death was within five minutes.

The jury found in favor of the physicians.—*Cote v. Anderson* (Cal.Super.Ct., Los Angeles Co., Docket No. 966476, May 2, 1972)

Hospital Liable for Radiologist's Negligence

A hospital employing a radiologist for a five-year period was liable for injuries suffered by a patient during X-ray procedures. Pointing out a hospital's "grave responsibility" in undertaking "one of mankind's most critically important and delicate fields of endeavor," an Arizona appellate court applied the doctrine that a master is liable for a servant's acts.

The patient's physician had her admitted to the hospital because of back pains. He then referred her to a specialist in orthopedic surgery. The specialist thought that she might be suffering from a herniated lumbar disk, and he recommended that she undergo a lumbar myelogram to determine the exact nature of her injury.

Arrangements were made to perform the myelogram in an X-ray room of the hospital. Present at the procedure were the orthopedic specialist, a radiologist (who was to perform the fluoroscopic examination), and an X-ray technician.

During the examination, the screen of the X-ray machine, operated by the radiologist, descended to a point where it struck a needle which the orthopedic specialist had inserted in the subarachnoid space of the patient's spine for the purpose of injecting a fluid dye. The X-ray machine collided with the needle because of failure to place the descent-arresting stop on the machine.

Fluid escaped from the desired area, and the attempt to perform the myelogram was abandoned. Subsequently, the patient began having respiratory difficulties.

The orthopedic specialist was of the opinion that the patient "had contracted pneumonia from the extravasation of the dye from the myelographic procedure." He also said that the extravasation of the dye may have resulted from his inserting the needle too deeply when additional dye was injected. He indicated, however, that it was "just as probable" that the extravasation was caused by the X-ray screen striking the needle.

On appeal from summary judgment in favor of the hospital, the appellate court reversed and remanded the case. The court pointed out that the patient had no choice of a radiologist and that the X-ray procedure was performed by a radiologist who was a hospital employee. The hospital billed the patient for the radiologist's services, and the radiologist was reimbursed on a percentage basis. He was employed for a five-year term, undertook not to establish any private practice, and was subject to hospital rules concerning vacations.

The reviewing court noted that the basic trend in malpractice law, as well as in tort law generally, is to impose liability on the master for acts of a servant in the course of his employment. There was no reason, the court said, to except hospitals from this general principle.

The distinction formerly made between administrative and professional duties was rejected by the court as being confusing and inequitable. An employer-employee relationship existed between the radiologist and the hospital, and the doctrine of master-servant liability was applicable.—*Beeck v. Tucson General Hospital*, 500 P.2d 1153 (Ariz.Ct. of App., Sept. 19, 1972)

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The Journal accepts short classified advertising from the members of the Kansas Medical Society without a charge. These ads run in three consecutive issues of the Journal and are keyed with a correspondence number. All replies are forwarded immediately to the advertiser. Other brief classified ads are accepted from members of the medical profession only upon approval of the Editor or Editorial Board.

Council Meeting

Report of Meeting Held April 15, 1973

The Council was called into session at 10:00 a.m. on Sunday, April 15, 1973 at the Continental Host Motel, Junction City, by Dr. Kenneth L. Graham, President.

Present were Dr. Graham; Drs. John N. Blank, George E. Burket, Jr., Phillip A. Godwin, M. Robert Knapp, Chester M. Lessenden, Jr., John C. Mitchell, and Thomas F. Taylor (Officers).

Also present were Drs. Wayne O. Wallace, District #1; Donald J. Smith, District #3; Gerald L. Mowry, District #5; Richard R. Beach, District #6; Sigurd S. Daehnke, District #8; Richard M. Glover, District #10; Warren E. Meyer, District #11; Vernon W. Filley, District #12; William W. Orrison, District #15; and Alex C. Mitchell, District #18.

Also present were Drs. Louis M. Culp, Kansas City; David L. Hiebert, Lawrence; Thomas C. Hurst, Wichita; Charles V. Minnick, Junction City; Vale Page, Plainville; Robert D. Parman, Topeka; Alex Scott, Junction City; John A. Segerson, Topeka; Charles R. Svoboda, Chapman; Archibald O. Tetzlaff, Shawnee Mission; and Emerson D. Yoder, Denton.

Also present were Mr. Hank Parkinson, Mr. Dave Morrison, Mrs. Martha Hunt, and Messrs. Gary Rexford, Jim Agin, Jerry Slaughter and Oliver E. Ebel.

Mr. Parkinson reported on the education-information activities of the Society. Seventy news releases issued during the year were received well by the media. Spot announcements for radio have also been submitted, and approximately $20,000 of free radio time had been contributed during the year.

Dr. Blank and Mr. Ebel reported on the activities of the Legislative Committee. Dr. Blank also reported on a PSRO and Foundations conference which he attended.

Dr. Knapp attended a national convention of Foundations, and he reported on that meeting.

Mr. Morrison stated that no national regulations for a regional advisory PSRO committee have as yet been formulated. The American Medical Association is working with HEW on that subject, and the AMA hopes the Foundations will become the PSROs.

The Kansas Society of Anesthesiologists presented the following resolution, which was adopted by the Council. The Society will seek legal advice on this resolution from its attorney:

> *Resolved,* That only a licensed physician should be authorized by law to charge a fee for anesthesia services performed by a non-physician under the direction and supervision of the physician who employs the non-physician in the capacity of a physician's assistant, either for the individual service or as a regular employee, and that payment should be made directly to the employing physician on the basis of the usual, customary or reasonable charges concept, subject to peer review; and be it further
>
> *Resolved,* That the Kansas Medical Society membership be encouraged individually and collectively to support this resolution by all available means including, but not limited to, a formal and official presentation to the Kansas state legislature.

The Council approved the Kansas Association of Dermatologists as a recognized specialty society.

The Council approved the employment of Mr. Jerry Slaughter by the Society.

Dr. Lessenden reported on the budget, anticipating a dues increase in October, for 1974.

Dr. John C. Mitchell extended an invitation from the Saline County Medical Society to the Kansas Medical Society to hold its 1976 annual meeting in Salina, on May 2-5. This was accepted by the Council.

Two nominations to the Blue Cross Board were confirmed: Drs. W. R. Durkee, Manhattan, and J. B. Jarrott, Hutchinson. Two additional nominations will be submitted by the Shawnee and Johnson counties respectively.

Dr. Blank presented a plan for the County Societies Officers Conference to be held in 1974.

The Council authorized that the Society immediately urge both Kansas Senators to oppose SB 14, Sen. Kennedy's HMO bill, when it comes up for debate in the Senate next week.

Letters to VOX DOX should be addressed to the Vox Dox Editor, Journal of the Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.

Woman's Auxiliary

. . . Annie takes in the town (Wichita, that is)

If there's anything that Auxiliary Annie likes, it's conventions. Especially conventions where she sees everyone she knows and maybe makes a few more new friends. And she likes conventions where there is something going on and something to do almost all the time, and that's the way it was at Wichita.

Fact is, there was so much to do and so many people to see that Annie was hard pushed to do it all. To begin with, everything was different this year. She thinks maybe the convention planners played "fruit basket upset" with the usual schedule to work everything in, but it was a great way to go.

Things started off rather seriously, for Auxilians anyhow, with the addition of a scientific session just for the women. Well, we invited the men to come if they wanted, and a few did . . . but it was aimed toward the women. Dr. Tom Kendall, a Wichita plastic surgeon, talked on the cosmetic effects of reconstructive plastic surgery. Then, would you believe, a real American Indian named Blackbear Bosin told us all about medicine "From the Medicine Man to Modern Medicine?" Did a good job, too. And he's a famous Indian artist as well. Talented, that man is.

Mrs. Willard Scrivner, national president-elect, spoke to the group at the Monday luncheon. Ruth has been to Kansas once before, so it was almost like old home week, especially since she knew so many of the past state presidents, and of course our two national representatives, Edith Lessenden and Lela May Young.

Convention business went right along, and the delegates to the various sessions were good girls, sat still and all that, and kept things moving. Right after the general session we had a lovely concert in the Kiva area and everyone ate their lunches out of brown paper bags. Nice and informal, and pantssuits were the order of the day.

The Wichita Auxiliary were nice enough to provide coffee in the hospitality room when social or business sessions weren't going on. It's little things like that the members appreciate and remember, too.

Guess you might say the new Holiday Inn Plaza is the "most." Beautiful place . . . functional too. Somehow you don't feel you are right in the middle of downtown, yet it has all the advantages of being downtown. Like shopping, for instance. Tuesday afternoon was free for that, or whatever anyone wanted to do. Annie rested her tootsies. Besides that she was broke from going to Spain.

The men were good to us, too. We had the usual fun time at the Sportsmen's Banquet and enjoyed the pomp and ceremony of the President's Banquet. If there is anything that Annie likes as well as conventions, it's parties, and when you mix the two of them, she thinks she really has it made.

It was really nice to get away for a few days and recuperate from all the water-weary days we've had this spring. Fact is, it's been so wet in Kansas that Annie wouldn't even shed tears for fear of adding to the flood. . . .

The Auxiliary 1973-74 officers were installed at the general session, with Annie's favorite redhead Katie Pyle heading up the team, and Dot (Mrs. Warren) Meyer as president-elect. Katie is planning a Health Education Conference, so watch and plan on attending if you can. Anyhow, urge your wife to go and also sorta remind her that the regional workshops in the fall are fun and fact and that she should take one of those in, will you?

So . . . thanks again to you nice men in the Kansas Medical Society for including all of us in your convention. And thanks again for all the help you've always been to us. We hope we can help you just as much in some way.

Next time I'll give you a rundown of the year's Auxiliary activities. We got a lot done, one way or another.

Until then, we are still "conventionally yours,"

Auxiliary Annie

The advertising in

THE JOURNAL

keeps you informed and helps pay the publishing costs!

When the local representative calls, tell him you saw his company's ad in your journal.

MEDICAL PHARMACOLOGY by Andres Goth, M.D. The C. V. Mosby Company, St. Louis. 1972. 704 pages, 119 illustrations. $16.50.

Doctor Goth has written a concise, up-to-date textbook for medical students. Whether it will find favor with practicing physicians depends upon what they are looking for. If they want an introduction to immunopharmacology, or to kinins and prostaglandins they will be pleased with this book; but as a guide to therapeutics they will probably not find it to be extremely useful.

The book can be recommended for one who wishes a general review of pharmacologic principles and concepts.

The illustrations, tables and diagrams are clear and effective, and the index is good. This is a well-made, well-printed book.—*J.D.R.*

REVIEW OF LABORATORY MEDICINE by John S. Meyer, M.D. and Lawrence S. Steinberg, M.D. The C. V. Mosby Company, St. Louis. 1971. 275 pages, 124 illustrations. $8.75.

This book consists of short questions and answers about the clinical laboratory of amniotic fluid, blood banking, bacteriology, cerebrospinal fluid, clinical chemistry, coagulation, cytogenetics, feces and intestinal absorption, organic fluid, fungi, gastric analysis, hemotology, liver function tests, parasitology and medical mycology, pregnancy tests, renal function, semen, serology, toxicology, and urinalysis. The questions are grouped in chapters which, in turn, start with a brief introduction and bibliography that include the main textbooks of laboratory medicine in the United States, and some important papers that developed new areas of study, or which change the interpretation of laboratory tests.

The chapters on amniotic fluid, statistics and quality control, and instrumentation contribute to areas frequently overlooked in compendia such as this book.

The chapter on toxicology deals with the classic toxics, such as arsenic, alcohol and barbiturates, but lacks information about the problem drugs of today, such as amphetamines, tranquilizers, heroin, etc.

This question and answer book is not for background enrichment; it provides quick answers suitable for "grand rounds," examinations, and in such capacity will be suitable for residents in clinical pathology and as a preparatory study for state board examinations which today include a good share of laboratory questions.—*A.H.*

SHAND'S HANDBOOK OF ORTHOPAEDIC SURGERY by R. Beverly Raney, Sr., M.D. and H. Robert Brashear, Jr., M.D. The C. V. Mosby Company, St. Louis. 1971. 543 pages. $15.50.

This new edition is an enlarged version of the book that has been used for years by medical students. The book is well organized and easy to read, and gives good coverage of the fundamentals of orthopedic surgery.

It has been brought up to date as far as some of the newer aspects of orthopedic surgery are concerned, particularly the chapter involving amputations, prosthetics, and braces. The chapter on Fracture Principles and Fracture Healing is also very good.

This book is excellent for the medical student, the intern, and the general practitioner. It would also be of value to the orthopedic surgery resident and orthopedic surgeon for general review of fundamentals of orthopedic surgery.—*R.R.P.*

Kansas Press Looks at Medicine

MORE DOCTORS NEEDED

Engineers and teachers are no longer in short supply, but there are shortages in certain other professions. It is difficult to remember a time when the field of medicine had an abundance of talent.

The United States has always had a shortage of doctors, and according to several surveys there will be a greater shortage in years to come. The situation is true locally.

Two of the main factors involved in the doctor shortage are the rigid scholastic requirements and large sum of money needed to complete a medical education. After a doctor graduates from medical school, he faces several more years of internship and residency.

Obviously, the strict requirements for a profession responsible for human lives cannot be lowered, nor can the number of years required in training. There is only one feasible way in which the monetary needs of prospective medical students can be supplemented, and that is through increased scholarship endowments from organizations and individuals.

Unless and until additional medical scholarships become available, many capable students will be denied entry into one of the most demanding professions.—*Larned Daily Tiller & Toiler,* Larned, Mar. 13, 1973.

PHONEY MISSED

It has become so difficult to attract doctors to rural counties in the U. S. that one small town apparently would rather have a fake doctor than none at all. Eureka, Nev., an isolated mining community with a dwindling population, felt itself fortunate when it was able to convince a doctor to settle there early last year.

For six months he practiced medicine, setting bones and dispensing medicines to the satisfaction of many of the town's 350 residents. They were pleased they no longer had to travel 75 miles to reach the nearest medical help.

Then it happened. Somebody discovered the "doctor," who also had been hired as county physician, had no license to practice medicine. Eureka's only practitioner left town one day before he was charged with practicing without a license and accepting money under false pretenses.

Little could be learned of the man's background except the American Medical Association has a report he tried to practice in Alaska before moving to Nevada. Eureka again is without medical care, but the townspeople seem more hurt than angry.

I heard a discussion between a doctor and an attorney here in Sumner County the other day. The doctor told the lawyer: "I don't say that all lawyers are crooks, but you will have to admit that your profession doesn't make angels out of men."

The lawyer replied: "No, you doctors certainly have the best of us there."—*Wellington Daily News,* Wellington, Mar. 16, 1973.

BOOKSHELF

Books acknowledged in this section are available on loan from the Health Sciences Library, c/o Stormont-Vail Hospital, 10th & Washburn, Topeka, Kansas 66606.

Scientigraphy of the Pancreas
Carlo Prior, M.D. and Umberto Valente, M.D.
Piccin Medical Books, Padova, Italy
135 pp., illustrated, 1971

Gastroscopy with the Fiberscope
G. Allegra, M.D., M. Macchini, M.D., F. Andreoli, M.D.
Piccin Medical Books, Padova, Italy
134 pp., illustrated, 1971

Newer Anticancer Drugs and Procedures
Proceedings of a Clinical Oncology Seminar, Padova
F. Fiorentino, M.D., Editor
Piccin Medical Books, Padova, Italy
149 pp., illustrated, 1971

Thyroid Tumours, Lymphomas, Granulocytic Leukemia
Proceedings of the II Padua Seminar on Clinical Oncology, October 1972
M. Fiorentino, R. Vangelista, E. Grigoletto
Piccin Medical Books, Padova, Italy
210 pp.

Advances in Gastrointestinal Endoscopy
Proceedings of the 2nd World Congress of Gastrointestinal Endoscopy, July 1970
Piccin Medical Books, Padova, Italy
929 pp., illustrated

Handbook of Pediatrics
Henry K. Silver, C. Henry Kempe, Henry B. Bruyn
Lange Medical Publications
693 pp.

Pharmacographia Indica: A History of the Principal Drugs of Vegetable Origin
William Dymock, Editor
Institute of Health and Tibbi Research
Hamdard National Foundation, Karachi, Pakistan
546 pp.

Trauma Conference

(Continued from page 200)

formed by now on bowel, abdominal wall, and other structures to prevent this from occurring. However, if it does dehisce, we will probably settle for a hernia. If it eviscerates, we will go back and reapproximate Marlex mesh to his fascia.

Addendum

Postoperatively, the patient did well without evidence of peritonitis, wound disruption, or hernia. A portion of the lower margin of the pedicle graft underwent necrosis and had to be debrided. Skin grafts were then placed over the donor site and the area of pedicle necrosis *(Figure 4)*. A small draining wound persisted for two months and then healed without further problems. The patient is currently employed in his former occupation, and is under the care of a psychiatrist.

References

1. DeMuth, W. E., Jr.: The mechanism of shotgun wounds. *J. Trauma* 11:219, 1971.
2. Millard, D. R.: The Crane principle for the transport of subcutaneous tissue. *Plast. Reconstr. Surg.* 43:451, 1969.
3. Usher, F. C.; Fries, J. G.; Ochsner, J.; Tuttle, L. L. D., Jr. and Gannon, J. P.: Marlex mesh: a new plastic mesh for replacing tissue defects, I. Experimental studies, II. Clinical studies. *Arch. Surg.* 78:131, 1959.

Streptococcal Pharyngitis

(Continued from page 206)

6. Wintrobe, M. M.; Thorn, G. W.; Adams, R. D.; Bennett, I. L.; Braunwald, E.; Isselbacher, K. J. and Petersdorf, R. G.: *Harrison's Principles of Internal Medicine,* ed. 6. New York, McGraw Hill, 1970, pp. 785-790.
7. Margileth, A. M. and Museles, M.: The value of office bacteriology in the diagnosis of streptococcal pharyngitis. *Milit. Med.* 128:871-880, 1963.
8. Phibbs, B., *et al.:* A community wide streptococcal control project. *JAMA* 214:2018-2024, 1970.
9. Rammelkamp, C. H. and Monson, T. P.: Streptococcal infections, early diagnosis and treatment. *Med. Times* 99:48-57, 1971.
10. Randolph, M. F.; Redys, J. J. and Hubbard, E. W.: Streptococcal pharyngitis; Part I—Correlation of cultures and clinical data. *Delaware Med. J.* 42:29-34, 1970.
11. Stillerman, M. and Bernstein, S. H.: Streptococcal pharyngitis, evaluation of clinical syndromes and diagnosis. *Amer. J. Dis. Child.* 101:476-489, 1961.
12. Siegel, Johnson and Stollerman, G. H.: Streptococcal pharyngitis in a pediatric population. *New Eng. J. Med.* 265:559-565, 1961.
13. Stollerman, G. H. and Pearce, I. A.: The changing epidemiology of rheumatic fever and acute glomerulonephritis. *Advances Intern. Med.* 14:201-239, 1968.
14. Wannamaker, L. W.: A method of culture for beta hemolytic streptococci with 95% accuracy. *Circulation* 32: 1054-1058, 1965.

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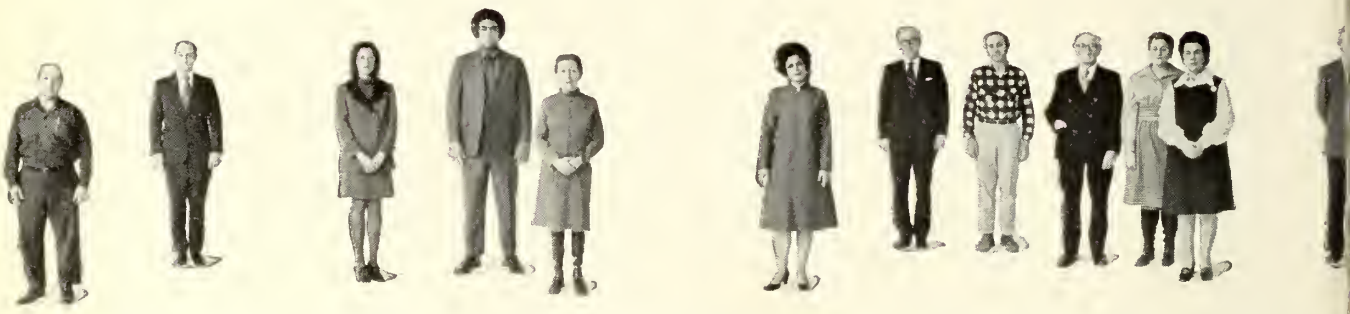

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Scientific ARTICLES

Thoracic Pseudomyxoma

A Case Report

RAMON A. GUILLAN, M.D., F.C.A.P., F.A.C.P.* *and*
SAMUEL ZELMAN, M.D., *Topeka*

PSEUDOMYXOMATOUS spread of carcinoma of the lungs is a unique complication. Review of the literature fails to reveal a similar case. This finding, plus the possible therapeutic implications, prompted the writing of this interesting case report.

A 52-year-old, white male was referred to the Veterans Administration Hospital in Topeka, Kansas, from a private institution because of probable extensive malignancy, either primary or secondary, involving the left pleura. He had been complaining for several weeks of shortness of breath and chest pains. Though the chest pain was diffusely present, it was more pronounced on the left side. He had been a heavy smoker for the past 40 years, but had stopped smoking several months ago. Physical examination revealed a chronically ill, emaciated patient. There was a marked shift to the left of the trachea as well as the heart. The heart sounds were distant and heard best on the right side. The left hemithorax was dull to percussion and breath sounds were absent. On the right side, the breath sounds were rather harsh. The rest of the physical examination was practically normal. A chest x-ray film revealed the left hemithorax completely opacified, the right hemithorax clear, and the right hilus unremarkable. A thoracentesis on October 17, 1970 yielded 2,500 cc of a reddish-brown fluid. The fluid was quite mucinous throughout the entire specimen, and cytologic studies revealed malignant cells. A gastrointestinal series, barium enema, and rectosigmoidoscopy were negative. Bilateral bronchial washings were performed and reported as negative. A left scalene node biopsy showed a metastatic, undifferentiated carcinoma, probably from the lungs. Because of increasing shortness of breath, chest pains, and diffuse opacification of the left hemithorax, thoracentesis was repeated on October 29, and approximately 2,500 cc of a reddish-brown mucinous fluid was obtained. At this point, for the first time after the removal of the fluid, 30 mg of nitrogen mustard was introduced into the left pleural cavity. On readmission on November 10, 1970, the patient was still complaining of diffuse chest pain, more marked on the left side, with shortness of breath and difficulty in walking. On physical examination, the positive findings were: respiration at a rate of 18 per minute; dullness of the left hemithorax; and emaciation. A chest roentgenogram of November 13, 1970, showed massive left pleural effusion with moderate mediastinal shift to the right. Because the patient was running a mild fever, a thoracentesis was performed. The fluid obtained for cultures was negative. On

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November 16, because of increased shortness of breath, the thoracentesis was repeated, yielding only 280 cc of fluid. For the second time, 30 mg of nitrogen mustard was introduced into the left pleural cavity. Cytologic examination of the fluid again revealed malignant cells. After this second treatment with nitrogen mustard, the patient's symptoms of chest pain and dyspnea improved. The x-rays still revealed diffuse opacification of the left hemithorax with marked mediastinal shift to the right. On December 7, the patient was discharged but readmitted on December 31, complaining again of chest pains and shortness of breath, as well as right hip and low back pain, with numbness of both lower extremities. The positive findings on physical examination were: dullness to percussion and absent breath sounds of the left hemithorax; atrophy of both lower extremities, more marked proximally; and absence of patellar and ankle reflexes in both legs. Chest x-ray film showed the same findings as found on previous admission, but they were more marked. Films of the skull, spine, and long bones revealed no metastatic disease. A stereoscopic view of the sacrum revealed an ill-defined area of rarefaction of the left upper sacrum which was considered to be possibly metastatic. A myelogram performed on January 21, 1971 showed upper marginal compression of several lumbar segments, and minimal anterolateral extradural defect on the right at the level of the fourth and fifth lumbar spaces. Because of the possibility of metastatis to the sacrum, causing pain in the lower extremities, the patient received ten CO-60 local irradiations, with no resultant improvement. He kept deteriorating very rapidly, dying with signs and symptoms of diffuse carcinomatosis on March 27, 1971. Time from onset of symptoms to death was eight months.

Autopsy Findings

The body was that of a 52-year-old, white male, measuring 67 inches (169 cm) in length and weighing 125 pounds (56.5 kg). The thoracic cavity revealed massive involvement of the left lung by tumor tissue, with marked shift of the mediastinal organs toward the right side. The left lung was completely encased by abundant sacculated gelatinous tissue *(Figures 1 and 2)*. Multiple sections of the lung showed this tissue to be approximately 12 inches thick and superficially invading the lung parenchyma for an approximate extension of 3 cm. The tissue was very soft and extremely slippery, consisting of sacculated, translucent, gelatin-like material, the dividing septa made up of pearly-gray, slippery tissue. Metastatis was present to the contralateral lung, soft tissue, hilar lymph nodes, thyroid, both adrenal glands, liver, pancreas, heart, and bone.

In some areas, the tumor was made up of extremely anaplastic cells, multinucleated, some showing evidence of cannibalism, and bizarre mitotic figures. Other areas of the tumor showed abundant hyalinized connective tissue septa, lined with uniform low columnar epithelium and abundant mucin-producing cytoplasm *(Figures 3-5)*. The diagnosis was anaplastic adenocarcinoma of the lungs. Because of the unusual arrangement of cells in areas of the tumor where mucin production was predominant, the slides were sent to the Air Force Institute of Pathology, who concurred with our interpretation.

Discussion

The thoracic pseudomyxoma reported here is a unique complication of carcinoma of the lung with gross findings similar to pseudomyxoma peritonei.[1] As opposed to the latter, it spread not only locally, but also induced widespread metastasis with very short survival time.

The tumor arose peripherally in the left lung, growing outward with secondary infiltration of the soft tissue of the thoracic cage and encasing the lung

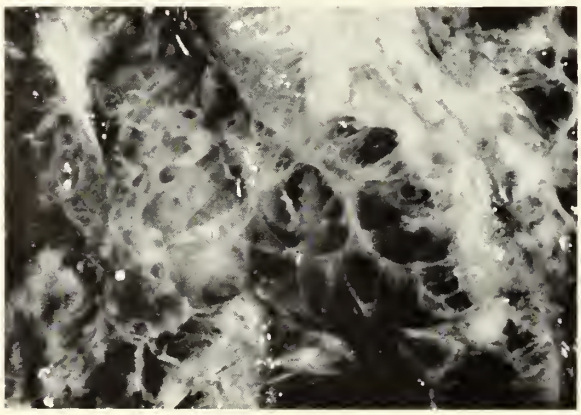

Figure 1. Tumor encasing left lung, made up of sacculated gelatinous tissue.

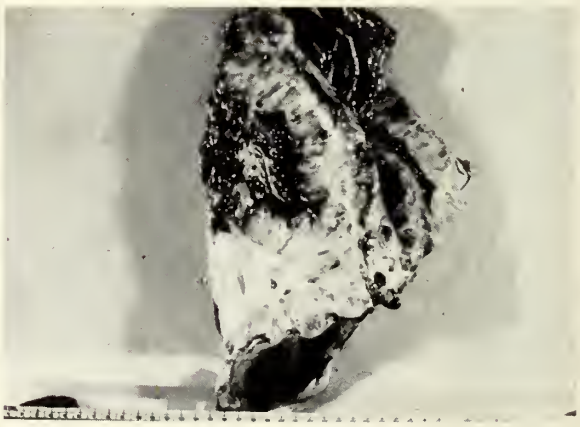

Figure 2. Left lung surrounded by sacculated gelatinous tissue.

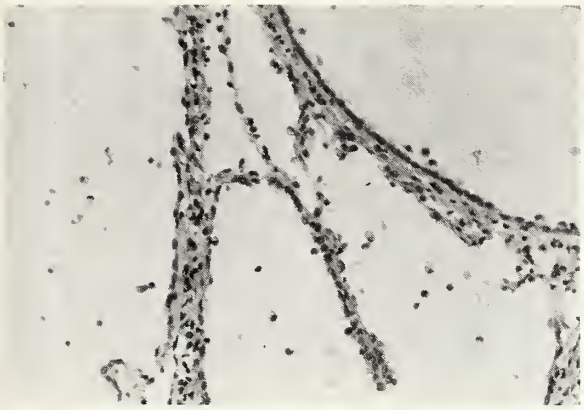

Figure 3. Sections of tumor surrounding left lung, made up of connective tissue septa, lined with uniform low columnar epithelium (H & E × 120).

with abundant sacculated, translucent, gelatinous material, which measured up to 12 cm in thickness. Marked shift of the heart toward the right side and diffuse infiltration of mediastinal organs were evident. Even though the tumor was extensive, the lung parenchyma was only superficially infiltrated for an approximate extension of 3 cm. Direct communication between the tumor and the bronchial system was not seen.

Microscopic examination showed an extremely anaplastic neoplasm with multinucleated giant cells and cannibalism. Other areas of the tumor were made up of abundant hyalinized connective tissue bands surrounding pools of mucin. The septa were in instances lined with regular low columnar epithelium with basally placed nucleus and fairly abundant mucin-positive cytoplasm.

From the time of the patient's admission to this hospital, he showed progressive deterioration with little improvement in spite of treatment. His death was due to marked respiratory impairment secondary to encroachment of tumor tissue upon vital organs of the thoracic cage. He was treated with instillation of nitrogen mustard after thoracentesis on two occasions and CO-60 irradiation to the lumbar area, because of bony metastasis with severe radicular pain.

Though the patient had some improvement of his chest complaints after the second dose of nitrogen mustard was instilled into the pleural cavity on November 16, on readmission to the hospital three weeks later he was severely ill with marked shortness of breath and chest pain. Chest roentgenographic studies showed pleural effusion and the left hemithorax completely opacified. At this time, thoracentesis yielded only a few cc of gelatinous material. From this time on the patient showed no improvement, dying cachectic and in severe respiratory impairment.

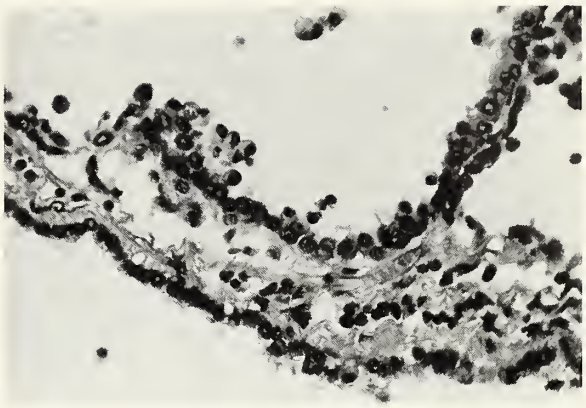

Figure 4. High power of *Figure 3* (H & E × 250).

Because of the nature of the disease in thoracic pseudomyxoma, the clinical course is much faster than pseudomyxoma peritonei, though the pathophysiology of both tumors is the same.[1] Both are due to shedding of malignant cells from the primary tumor with sedimentation of these cells on the peritoneal or pleural surfaces. The radiosensitivity of a tumor is inversely related to the extent of cell differentiation, degree of inflammatory reaction, extent of desmoplastic stromal activity, and age of the patient. Response to radiotherapy is directly related to the degree of vascularity and oxygen saturation of the tissues.[2] Mucin production interferes with the destructive effects of x-rays. The final effect of both radiotherapy and chemotherapy is the replacement of more intricate cells or their exudates and transudates with scar tissue.[3]

The best treatment of a primary mucin-producing tumor of the lung with secondary pleural effusion of mucin material would be thoracotomy with resection of as much tumor as possible. The above men-

(Continued on page 223)

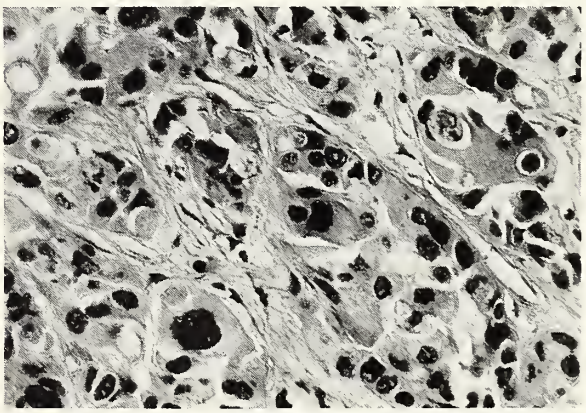

Figure 5. Areas of tumor surrounding left lung, consisting of anaplastic cells, most of them bizarre looking, multinucleated and showing evidence of cannibalism (H & E × 400).

Psychiatry in Pediatrics

Emotional Guidance in Pediatric Practice

RONALD D. GREENWOOD, M.D., *Salina*

THE PEDIATRICIAN is in a unique position in that he can directly influence the psychological development of the children in his practice. An important portion of preventive pediatrics lies in the area of emotional guidance. This can occur in well-baby and well-child visits, and a suggested guidance schedule for this purpose has been prepared by the American Academy of Pediatrics.[1] In addition, when minor emotional disturbances are seen or when the home environment is predisposing to such problems, they should be discussed with the family. Obviously, true emotional problems must be handled directly and are frequently seen by the pediatrician. It is more desirable to prevent these problems, rather than to identify and treat them.[1-3] The emotional development of the child is further influenced by the manner in which the pediatrician manages minor illnesses, more serious illness, and the hospitalized child.[2, 3]

Description of Patients

The first 500 patients seen in a general pediatric practice for problems of emotional disturbances are tabulated in *Table 1*. These patients were accumulated over a 15-month period. The frequency of visits for each patient varied from one visit for counseling, with a followup phone call for progress, to several visits weekly on a regular basis for several months. The types of problems dealt with are divided into categories based on the predominant type problem.

Behavior problems include such difficulties as temper tantrums, sleeping difficulty, eating problems, encopresis, enuresis for secondary gain, feigned seizures, uncontrolled behavior at home, fighting, refusing to follow maternal directions, acting out, urinary frequency, increased activity, destructive behavior, masturbation with parental mismanagement, stealing, other discipline problems, severe tic, acute phobias, and inappropriate hysterical reactions requiring therapy.

School problems is a category used to designate any problem that occurred solely at school—academic failure, conflict with authority, lethargy, behavior problems.

Children who were mentally deficient as a result of meningitis or Down's syndrome, or who from unknown causes had behavior problems, comprise this category.

In addition to preventive psychiatry, a significant portion of pediatric practice is devoted to emotional problems. The purpose of this communication is to summarize the experience with children with emotional problems in a general pediatric practice.

School phobia is reserved for those children who absolutely refuse to attend school, have extreme fear and complaints totally related to school attendance. Many children in the categories of behavior problems, school problems, and psychosomatic complaints suffer from mild school phobias, although they are not listed as such.

Functional complaints, hysteria, or psychosomatic complaints, real or feigned, are included in this category. Examples are abdominal pain, headache, dizziness, fainting, chest pain, leg pain, blindness, deafness, laryngitis, hyperventilation, generalized lethargy, psychogenic vomiting, and extreme dysmenorrhea.

Enuresis includes those children who were seen for this complaint only. They may have secondary emotional problems, but no primary problem to warrant placing them in another group.

Sexual problems include sexual precocity resulting in teenage pregnancy, abortion, repeated gonorrhea, parental or social discipline problems or family crisis, deviant sexual behavior (real or imagined), and sexual molestation.

Drug abuse includes patients seen for drug abuse who did not require management for behavior problems.

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The opinions expressed herein are those of the author and not the Department of the Army.

Personality disorders include antisocial types with repeated serious and resistant juvenile delinquency without guilt.

Obstipation includes only those children who were seen for this problem and who had no other primary problem to place them in another group.

Only children who were truly hyperactive were placed in this category. Children with "active" components to behavior problems were placed in the behavior problem category.

Children placed in the categories of overprotective or neglectful maternal relationships[4] presented difficulties directly related to these relationships, and therapy was aimed at correcting the faulty family setting. For instance, a child with mild functional complaints and confined at home by a mother who, compelled by this relationship, stated the many major medical problems, was placed in the category of overprotective maternal relationship and not in that of functional complaints.

Child abuse included parental battering, gross physical neglect, battering by a sibling, and purposeful administration of an overdose of drugs to a child.

Some problems with behavior, school, or management of illness were more related to parental inadequacy or anxiety than specific behavioral syndromes. Children with such problems were placed in respective categories.

Schizophrenia included patients with paranoid and undifferentiated types.

Depression was acute, situational (leukemia, parental separation), or chronic. Other neuroses included chronic anxiety and compulsive neuroses. Descriptions of children with these various problems are noted in other sources and will not be repeated here.[3–5]

The vast majority of these children were treated in the office. Seventy of the children were referred to psychiatric-social workers for outpatient psychological testing or for continued management at some time during their care, or to a visiting nurse for home visits for assistance in management. These occurred in conjunction with guidance and supervision from the pediatrician. Such patients were discussed at regular meetings of this group.

Some children required hospitalization for acute psychiatric reasons *(Table 1)*. A few children required long-term psychiatric residental placement *(Table 2)*.

Children or infants with inadequate, immature, neglectful, or psychoneurotic parents present problems for the pediatrician *(Table 3)*. Treatment must be afforded these children even though they may not have a true emotional problem. This included hospitalization for care for minor illness when parents could not provide it *(Table 4)*.

Some children, rather than being hospitalized, had placement of supervisors in the home or were temporarily placed in another home *(Table 5)*. In all cases, an attempt was made to avoid hospitalization unless absolutely necessary.

Treatment details are as described elsewhere.[3–5] Behavior problems were treated by explanation of the behavior to parents and by the use of simple techniques to correct it. Behavior modification,

TABLE I

HOSPITAL ADMISSIONS FOR ACUTE PSYCHIATRIC DISEASE

Patient	*Age* (YRS.)	*Diagnosis*
1	14	Severe functional abdominal pain
2	14	Hysteria
3	16	Hysteria
4	4	Severe functional abdominal pain
5	14	Self-inflicted gunshot wound
6	2	Severe behavior problem
7	7	Severe functional abdominal pain
8	14	Paranoid schizophrenia, drug overdose
9	14	Hyperventilation with tetany
10	10	Severe functional abdominal pain
11	14	Acute anxiety, personality disorder
12	8	Psychogenic blindness
13	13	Drug overdose, antisocial behavior
14	2	Child abuse
15	2	Severe functional abdominal pain

TABLE II

LONG-TERM RESIDENTIAL PLACEMENT FOR PSYCHIATRIC DISEASE

Patient	*Age* (YRS.)	*Diagnosis*
1	14	Paranoid schizophrenia and suicide attempts
2	14	Antisocial personality
3	10	Personality disorder and attempts at homicide
4	14	Antisocial personality, attempts at suicide
5	14	Personality disorder, and attempts at suicide
6	13	Mentally retarded, severe destructive behavior
7	14	Hysteria, severe school phobia, neglectful maternal relationship

TABLE III

SUMMARY OF 500 PATIENTS

Category	*Number*	*Per Cent*
1. Behavior problems	165	33.0
2. School problems	14	2.8
3. Behavior problems (mentally retarded)	7	1.4
4. School phobia	8	1.6
5. Functional complaints	101	20.2
6. Enuresis	13	2.6
7. Drug abuse	4	0.8
8. Sexual problems	10	2.0
9. Personality disorder	10	2.0
10. Obstipation	5	1.0
11. Hyperactivity	4	0.8
12. Overprotective maternal relationship	14	2.8
13. Neglectful maternal relationship	19	3.8
14. Child abuse	8	1.6
15. Parental anxiety	21	4.2
16. Parental inadequacy	76	15.2
17. Schizophrenia	3	0.6
18. Acute situational depression	2	0.4
19. Chronic depression	8	1.6
20. Compulsive neurosis	2	0.4
21. Chronic anxiety	9	1.8

using appropriate reward and punishment, when applied in a consistent manner, is extremely successful in minor pediatric problems.[6] Many times, a fresh look at the problem with explanation as to why it occurs will effect a change in the home environment. Often, the method of discipline in the home is faulty in that it is inconsistent, with inappropriate punishment, and promotes a loss of self-esteem. Some behavior problems required further family restructuring and treatment.

School problems were treated by full physical, intelligence, and psychological evaluations and consultation with teachers. Some of the problems arose from rigid parents who expected too much of the child, thereby causing the difficulties. Rearrangement of school activities and parental education proved beneficial.

Functional complaints were treated by reducing secondary gain and investigation of reasons within the family producing this behavior. Children with school phobias were returned to school immediately, were allowed to go home from school or not to go to school only after being examined by the physician. Family relationships producing fear of separation were investigated. In minor functional complaints, assuring the parent that no disease is present was sufficient.

Group therapy, mediated by the psychiatric-social workers, proved helpful in teenage children. Family therapy, where the family unit was significantly disturbed, was also handled by the social workers.

TABLE IV

HOSPITAL ADMISSIONS FOR PARENTAL INADEQUACY

Patient	*Age* (YRS.)	*Diagnosis*	*Reason*
1	3	Pharyngitis	Inadequate mother
2	2	U.R.I.	Inadequate mother
3	7	Diabetes	Inadequate mother
4	2	Otitis media	Intoxicated, inadequate mother
5	1	Otitis media	Inadequate mother
6	3	Otitis media	Inadequate, neglectful mother
7	7	Diabetes	Inadequate mother
8	2	Mild gastroenteritis	Inadequate mother
9	14	Resolving pharyngitis	Inadequate, anxious mother

Reality therapy and discussion pointing out rational alternatives and inevitable consequences of certain plans of action was used frequently in older children.

Drug therapy was used only in several distinct categories: (1) hyperactivity—minimal brain dysfunction; (2) extreme anxiety in acute episodes;

TABLE V

TEMPORARY PLACEMENT IN HOME OF SUPERVISOR IN LIEU OF HOSPITALIZATION

Patient	*Age* (YRS.)	*Diagnosis*	*Reason*
1	2	Otitis media	Inadequate mother
2	7	Diabetes	Inadequate mother
3	14	Personality disorder	Pyromania, inadequate mother
4	16	Sexual and behavior problem	Inadequate mother, stealing
5	13	Personality disorder	Suicide attempts repeated. Inadequate mother
6	3	Acute anxiety, phobias	Extreme phobias, with extreme maternal anxiety
7	⅓	Thrush	Intoxicated, inadequate mother
8	13	Personality disorder	School phobia, inadequate mother

(3) extreme anxiety in a few long-term patients; (4) obstipation; (5) enuresis. Drugs were used only in conjunction with continual psychiatric therapy or behavior modification.

On occasion, detailed background history, detailed psychological testing, and long-term therapy were undertaken.

Discussion

Most emotional problems can be handled successfully by the pediatrician, as the above survey reveals. The advantages of the primary pediatrician caring for these problems are obvious. However, if one prefers not to be involved in emotional guidance, the patient should be referred for this care. One should not fall into the trap of ignoring emotional problems.

Children with severe emotional disease must be referred for psychiatric care, but this survey discloses that the number of such patients is small. The pediatrician obviously should not attempt to care for emotionally sick patients.

All pediatricians may not be in a position where a close working relationship with psychologists or social workers allows a team approach, as was possible in the material discussed. In those instances, formal referral to appropriate agencies is necessary.

It is true that there is a small percentage of parents who do not wish to recognize emotional disorders in their children, and who will be resistant to accept functional abdominal pain as a diagnosis in place of acute appendicitis. In general, however, the results of emotional guidance will make most parents pleased with the pediatrician's efforts at counseling.

This experience would suggest to the pediatrician in training that the area of emotional guidance is one worthy of his investigation. In most pediatric training programs, little emphasis is placed on this area. Even if much of this work in the future is delegated to assistants in his office, the supervising pediatrician must be adept at directing these workers. Furthermore, the value of functioning as a knowledgeable advisor in the community for drug abuse, sex education, and behavior problems is readily seen. It would suggest to pediatricians in groups that association with a social worker or psychologist would allow more efficient disposition of children with difficult problems.

References

1. Christy, R. A. (ed.): *Standards of Child Health Care,* Evanston, American Academy of Pediatrics, 1972, pp. 14-33.

2. Carey, W. B. and Sibinga, M. S.: Avoiding pediatric pathogenesis in the management of acute minor illness. *Pediatrics* 49:553-562, 1972.

3. Schmitt, B. D.: School phobia—the great imitator: A pediatrician's viewpoint. *Pediatrics* 48:433-441, 1971.

4. Schulman, J. L.: *Management of Emotional Disorders in Pediatric Practice,* Chicago, Year Book Medical Publication, Inc., 1967, pp. 23-68.

5. Bakwin, H. and Bakwin, R. M.: *Behavior Disorders in Children,* Philadelphia, W. B. Saunders, 1972, pp. 432-664.

6. Brown, D. G.: Behavior modification with children. *Ment. Hyg.* 56:22-30, 1972.

Thoracic Pseudomyxoma

(Continued from page 219)

tioned modalities of treatment might then be of some benefit, providing the patient is in fairly good health, and there is no evidence of widespread metastatic disease.

Summary

The thoracic pseudomyxoma reported here is a unique complication of carcinoma of the lung with gross findings similar to pseudomyxoma peritonei. As opposed to the latter, it spread not only locally but also induced widespread metastases with very short survival time. Microscopic examination showed changes consistent with anaplastic adenocarcinoma of the lungs. Areas of the tumor were made up of hyalinized connective tissue bands surrounding pools of mucin. The septa were, in instances, lined with regular low columnar epithelium and fairly abundant mucin-positive cytoplasm.

In this type of tumor, aggressive treatment given at the very beginning, even though the patient would not be cured, at least would allow more comfort, with the probability of not dying in suffocation due to encroachment of the tumor upon vital chest organs.

References

1. Guillan, R. A.; Murphy, F. J.; Zelman, S. and Mason, H. C.: Pseudomyxoma peritonei: Therapeutic consideration of biochemical findings. *Amer. J. Proctol.* 17:201, 1966.

2. Wildermuth, O.: Hybaroxic radiation therapy in cancer management. *Radiology* 82:767, 1964.

3. Henshaw, P. S.: Biologic effects of radiation, U. V. Portmann (ed.), *Clinical Therapeutic Radiology.* New York, Thomas Nelson & Sons, 1950, p. 22.

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Splenic Arteriovenous Fistula

Diagnosis and Management

GULSHAN K. SETHI, M.D.,* *Oteen, North Carolina, and*
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SPLENIC ARTERIOVENOUS FISTULAE are rare. Weigert[1] recorded the first description of this in 1886. Since then, 26 more cases have been reported in the literature.[2-4] Most of them were diagnosed either at surgery or at autopsy and, occasionally, were discovered preoperatively by arteriography. They may be congenital, traumatic, arteriosclerotic, infectious, or idiopathic in origin. They usually present with signs and symptoms of portal hypertension, high output cardiac failure, or mesenteric venous congestion.

Case Report

A 56-year-old white female underwent cholecystectomy in 1957 in another institution. Following this, she developed jaundice secondary to common bile duct stricture. Resection of the stricture and end-to-end anastomosis of the duct were performed. She developed a biliary fistula and recurrent stenosis of the common bile duct followed by recurrent episodes of jaundice. She was first admitted to the University of Kansas Medical Center in December 1960. A diagnosis of recurrent stricture of the bile duct was made and a Rouxen-Y choledochojejunostomy and jejunojejunostomy were done. Advance biliary cirrhosis was observed at the time of operation. The patient was relieved of further difficulty with the extra hepatic dectile symptoms, but for five years preceding admission she experienced symptoms of peptic ulceration of the duodenum. These had been controlled adequately by diet and antacids until six months prior to this admission.

Physical examination revealed a well nourished white female in no acute distress. The pertinent physical findings were limited to the abdomen, which was soft but tender in the epigastric region. The liver was palpable 2 cm below the right subcostal margin, and the spleen was 3 cm below the left subcostal margin.

Laboratory investigation showed a moderate leucopenia and thrombocytopenia. Intravenous cholangiogram and chest x-rays were normal. A deformed duodenal bulb and an ulcer crater were seen on the upper gastrointestinal series. No esophageal varicosities were seen.

Surgical intervention was recommended for the intractable symptoms of peptic ulcer. Abdominal exploration showed an active duodenal ulcer, a cirrhotic liver, splenomegaly, and marked retroperitoneal venous collaterals. No pressure gradient between the inferior vena cava and the mesenteric veins was found. A complete infradiaphragmatic vagotomy, gastrojejunostomy, and splenectomy were done. Postoperatively, the patient developed findings of hepatic decompensation with palpitation, dyspnea, ascites, and peripheral edema. A bruit was first noted in the left upper quadrant three weeks following operation. A diagnosis of a splenic arteriovenous fistula was suspected. On the 24th postoperative day, using Seldinger technique, a selective coeliac angiogram was performed. The liver was small and the distal branches of the hepatic artery had a tortuous course with cork-screw appearance diagnostic of cirrhosis of the liver. Early filling of the grossly dilated splenic vein was observed *(Figure 1)*. The portal vein was obstructed and the blood was shunted to the dilated superior mesenteric vein *(Figures 2 and 3)*. Delayed films showed marked varices in the retroperitoneal area *(Figure 4)*. The patient was digitalized, and on the 30th postoperative day an abdominal exploration was done. Two liters of straw-colored ascitic fluid were aspirated. A thrill was palpable near the tail of the pancreas. The splenic vein was markedly dilated and retroperitoneal varices were noted. One of the large varices was traced downward and a fistulous open-

The report of a case of splenic arteriovenous fistula becoming evident following a splenectomy, diagnosed by angiography and treated surgically, constitutes the basis of this communication.

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Figure 1. Selective celiac angiogram, early phase.

ing of 1.5 cm was noted between the varix and the right common iliac vein. A 3 mm splenic arteriovenous fistula was identified and resected with splenic vessels being individually ligated.

Four years following this surgery the patient remains asymptomatic.

Discussion

The splenic arteriovenous fistulae can be congenital[2, 5] or acquired. Splenectomy,[3, 6] splenic trauma,[7, 8] endarteritis of the splenic artery,[4] or rupture of an aneurysm in the adjacent vein[9–11] may produce arteriovenous communication. Among eleven cases analyzed by Quintiliani and associates,[4] four were congenital or idiopathic; four due to rupture of the splenic artery aneurysm into the splenic vein; two due to a splenic trauma; and one due to endarteritis of the splenic artery.

Splenic arteriovenous fistulae are more frequent in females and may have some causal relationship with pregnancy.[12] Changes in intra-abdominal pressure during pregnancy and parturition may be responsible for rupture of a preexisting splenic artery aneurysm into the splenic vein.

Figure 3. Selective celiac angiogram, intermediate phase.

Abdominal pain, dyspepsia, diarrhea, weight loss, upper gastrointestinal bleeding, melena, and ascites are the usual presenting symptoms. Continuous murmur in the left lower chest and the left upper quadrant of the abdomen, wide pulse pressure, splenomegaly, ascites, and pedal edema may be observed on the physical examination.

Phonocardiography, cardiac catheterization with measurements of cardiac output, stroke volume, and arteriovenous difference indicate the hemodynamic changes due to the fistula. Calcification in the splenic region on abdominal x-ray may suggest a splenic arteriovenous communication. Aortography and, preferably, selective celiac angiography are mandatory to confirm the diagnosis and demonstrate the precise site of arteriovenous fistula. Early opacification of the portal system, together with dilated tortuous splenic artery, is the most important evidence of a splenic arteriovenous fistula. Splenectomy and resection of the fistula are the treatment of choice.

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Figure 2. Prompt opacification of splenic vein.

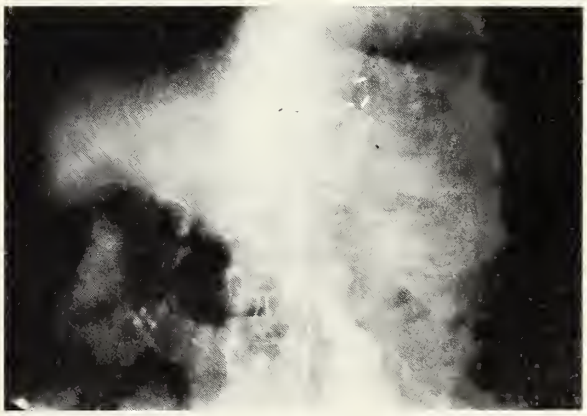

Figure 4. Selective celiac angiogram, delayed phase.

Cardiac Transplantation

Immunosuppressive Role of Anticoagulation

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INTRAVASCULAR COAGULATION within the allograft has been inculcated in canine renal allograft rejection.[1] Antigenic activity by the allografts causes host-antibody response with a subsequent antigen-antibody reaction in the allograft. Platelet aggregation and adhesions in the capillaries progress to intravascular coagulation. This is seen in the acute and chronic rejection processes.

Materials and Methods

Recent articles have described heterotopic cardiac transplantation in dogs with the heart being stored intra-abdominally.[2–7] The close correlation between rejection crises in the abdominal transplanted heart and those in the orthotopic transplanted heart has been mentioned. The advantages of accessibility, minimal postoperative morbidity and mortality, and ease of monitoring suggested the use of heterotopic transplantation in this experiment, rather than an orthotopic transplantation. Twenty pairs of unrelated mongrel dogs were selected, each pair being matched approximately in weight only. Twenty heterotopic transplantations were performed; nine recipients were used as control animals (group I) and were given no immunosuppressive therapy postoperatively, while 11 recipients were anticoagulated by heparinization postoperatively (group II). The technique of transplantation was similar to that described previously in rats and dogs. It entails the excision of the heart from the donor animal with ligation of both vena cava and all four pulmonary veins of the donor heart, and anastomosis in the abdomen of the recipient animal of the donor aorta end-to-side with the recipient's abdominal aorta, and of the donor main pulmonary artery end-to-side with the recipient's abdominal inferior vena cava.[2–7] Parameters monitored in the postoperative period were daily electrocardiographs of the recipient heart and of the donor heart, the latter being taken directly over the beating heart in the recipient's abdomen. Complete blood count of the recipient, pulse rate, temperature and Lee White clotting times were measured daily. Heparinization of the group II animals was achieved by subcutaneous injections of heparin every 12 hours, the dose ranging from 3.0 to 6.0 mg/kg every 12 hours. Antibiotics were used as indicated for respiratory or wound infections, and if the hemoglobin fell below 10 gm/100 ml, a transfusion with fresh filtered whole blood was undertaken.

This report deals with the use of heparin anticoagulation as a means of preventing acute rejection and prolonging allograft survival in canine cardiac transplantation.

Results

The survival of the transplanted donor heart in the control animal varied from 7 to 10 days, with a mean of 8 days *(Table 1)*. On cessation of donor heart activity, as monitored by EKG and clinical appraisal, the animals were sacrificed and autopsy performed. All animals in group I had frank rejection of the donor heart at autopsy. In group II, there were three animals who exsanguinated into their abdomen due to prolonged bleeding time on days 1, 2, and 4 postoperatively. There was no evidence of graft rejection present in any of these three animals. The remaining eight animals in group II had a donor cardiac survival of 8 to 33 days, the mean being 13.6 days. Upon sacrifice of these animals, the frank graft rejection was evident. The operative graft ischemia was measured from the ligation of the pulmonary veins of the left lung of the donor animal until the removal of the clamps from the abdominal aorta and vena cava after the anastomosis had been completed. The average ischemia time in the control group was 33.6 minutes, while in the anticoagulated

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TABLE I

	Survival	*Mean*
Group I		
9 Dogs	7-10 days	8 days
Group II		
8 Dogs	8-33 days	13.6 days
Excluded		
3 Dogs	Technical deaths (No rejection) 1- 4 days	

group it was 25.5 minutes. There seemed to be no relationship in this experiment between graft survival and operative graft ischemia.

The usual electrocardiographic picture in the first 48 hours postoperatively was that of myocardial ischemia with some ST segment shift and T-wave inversion, and this reverted to normal sinus rhythm with no signs of ischemia after 48 hours. The autopsy findings in the rejected heart included the presence of free peritoneal fluid, vigorous fibrinous pericarditis with subepicardial and subendocardial hemorrhages, hemorrhagic necrosis of the myocardium, infarction of the papillary muscles, and occasional verrucous deformities of the mitral and tricuspid valves. The microscopic appearance of the rejected heart was that of massive hemorrhagic necrosis of the myocardium with perivascular round cell infiltration and obliteration of the peripheral arterioles. The main coronary arteries were patent.

The adequacy of the anticoagulation regime was demonstrated by the three heparin deaths. The duration of the modified Lee White clotting time varied, depending on the interval between sampling and the previous heparin injection. The average value varied from 2 to 18 minutes, as the heparin was administered only every 12 hours.

Discussion

Heparin has been described as having multiple actions: (1) interfering with the formation of intrinsic thromboplastin as well as the conversion of fibrinogen to fibrin;[9] (2) a marked effect in lessening the relative blood viscosity and inhibition of any initiation or propagation of intravascular thrombosis;[8, 9] (3) in vivo and in vitro interference with the development of thromboplastin activity (neither factor 8 nor factor 5 is consumed in its presence);[10, 11] and (4) direct interference with the thromboplastic activity at a higher concentration.[11] In the tissue rejection phenomenon, platelets are the first microscopic blood elements to accumulate in the vasculature of renal transplants, and within a few hours platelet aggregates fill the renal vessels. Fusion of the platelets to form thrombi is often seen after a kidney has been in a sensitized recipient five hours.[14] The acute rejection phenomenon has been simplified in the form of the primary graft releasing antigen and, thereby, initiating the first steps in production of circulating antibodies, which antibodies bind to the antigen in the graft and induce platelet aggregation in the capillaries. Platelets may release agents which promote further clumping, vascular constriction, and cytotoxicity.[1] Blockade or destruction of the blood vessels in the transplant leads to ischemic death of the graft cells. Busch[1] found that intravascular coagulation may be acute and extensive in some cases, but may occur as prolonged focal microthrombosis in others. Fibrinogen fragments D and E appear in the urine during the acute reversible rejection episodes and persist throughout irreversible rejection. He suggested intravascular coagulation may be a major component of graft rejection. Porter[12] also noted that platelet aggregations may contribute to vascular blockade of human kidney transplants in episodes of acute rejection. Both canine orthotopic and heterotopic allografts demonstrate the presence of intravascular coagulation in severe rejection.[3, 4, 13]

The allograft survivals did not seem to depend upon the period of operative ischemia, with the heart able to endure a considerable time of ischemia without any long-term ill effects. Because of the severe intravascular coagulation in allograft rejection, anticoagulant therapy as an adjunctive means of immunosuppression seems logical. Significant long-term allograft survival cannot be achieved with anticoagulants alone, but this measure may be helpful when used in conjunction with other measures.

Summary

The heterotopically transplanted canine heart is used to investigate the efficacy of anticoagulation by heparin as a means of immunosuppression. Two groups of recipients are used, the control group having a donor heart survival of eight days, whereas the group anticoagulated with heparin had a graft survival of 13.6 days. There were three technical deaths in this group. The advantages of heterotopic transplantation over orthotopic transplantation for such investigations are mentioned, and the results obtained indicate that heparinization prolongs canine cardiac allograft survival.

References

1. Busch, G. J.; Braun, W. E.; Carpenter, C. B.; Corson, J. M.; Galvenek, E. R.; Reynolds, E. S.; Merrill, J. P. and Dammin, G. J.: Intravascular coagulation in human renal allograft rejection. *Transplant. Proc.* 1:267, 1969.

2. Reed, W. A. and Crosby, I. K.: Intra-abdominal homologous heart transplantation. *Proc. Soc. Exp. Biol. Med.* 131:1357, 1969.

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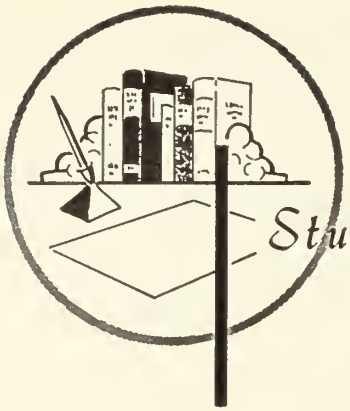

Student
THESIS

Raynaud's Disease

JOHN RAND NEUENSCHWANDER, M.D.,* *Kansas City, Kansas*

In 1862, Maurice Raynaud wrote a thesis entitled, "Local Asphyxia and Symmetrical Gangrene of the Extremities." His stated intention was to organize clinical information on a group of patients with similar symptoms. In this manner a foundation could be formed which would allow future classification and study of a clinical condition. Though Raynaud did advance an explanation for the reported symptoms, he fully expected that the future would show need to modify his views.[1]

As one studies the clinical entity now known as Raynaud's disease, one is impressed by the manner in which medical and allied sciences have made tedious but constant progress since Raynaud's time in explaining the disease which now bears his name. Thus, the purpose of this paper is to define the currently accepted symptomatology, pathogenesis, and treatment of a disease by tracing its historical paths.

Raynaud's Original Thesis

Before Raynaud's time, little work had been done on spontaneous asphyxia and gangrene of extremities. By the mid-1700s, the idea of arteries carrying blood for nourishment was being advanced, and in the 1800s theories were formed concerning arteritis and embolism. But the existing theories, Raynaud felt, were not applicable to his patients.

The patients Raynaud studied fell within a continuum of signs and symptoms ranging from occasional loss of color and sensation in the fingers, to more lasting loss of digital subcutaneous tissue and dry gangrene. Typically, the symptoms were bilateral and recurrent, associated with cold or nervousness. Raynaud first described a condition he termed "local syncope" or "local asphyxia," which is now, by convention, called the Raynaud's attack. Raynaud felt that in more severe cases local asphyxia could lead to atrophy and gangrene.

Raynaud intended to present a disease of singular etiology which could, by varying severity, result in minor discomfort or major pain and gangrene. He said, it usually affected fingers bilaterally or toes, and, more rarely, the hands, feet, ears, or nose. Predisposing factors were sex (20 of 25 patients were female), age (most patients were between 18 and 30 years of age), and temperament (nervous persons especially affected). Attacks were associated with cold (only one case occurring in summer) or violent emotion.

Raynaud then proceeded, by logic or physical dissection and experimentation, to rule out arteritis, embolism, narrowing of arteries, valvular heart disease, diabetes, and ergotism. Relying on existing knowledge of vasomotor innervation and arterial spasm, Raynaud advanced the following explanation.

Spasm of the capillaries in the extremities deprives them of blood, causing pallor and sensory loss; this is local syncope or the dead finger. Local asphyxia occurs when the venules relax during continuing arteriolar spasm, causing reflux of venous blood and the blue or black coloration. When vascular spasm is more severe, atrophy and gangrene result. In this manner, Raynaud explained the var-

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This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school.

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ied symptoms he saw by a singular etiology: vasospasm.

The last section of Raynaud's thesis, as well as his later work, *New Researches on the Nature and Treatment of Local Asphyxia of the Extremities*, were concerned primarily with treatment. In mild cases, Raynaud claimed some success with local rubs with aromatic solutions, application of leeches, and oral quinine sulfate. Raynaud's preferred treatment, to which the latter work is dedicated, was galvanism. The method and importance of galvanism was thus described by Raynaud:

> The electrical treatment consists in the employment of descending currents, applied either over the vertebral column to act on the spinal cord, or over the extremities themselves.
>
> The action exercised by the current on the cord appears to consist in an enfeeblement of the excito-motor power, whence there results a corresponding relaxation of the reflex vascular contractions.
>
> This mode of action of continuous currents leads us to think that local asphyxia of the extremities is essentially a neurosis characterised, as I have just said, by increased irritability of the central parts of the cord presiding over vascular innervation.[2]

Many authorities have felt it unfortunate that Raynaud included the term, symmetrical gangrene, in his thesis title. This frightening condition, much more impressive than skin color changes, caught the attention of clinicians to the extent that they neglected the more important fact; namely, that episodic changes in local perfusion could result from vasospasm. Raynaud himself voiced regret that many physicians did not think of Raynaud's disease as a continuum of symptoms with a common etiology. Still, for many years physicians continued to use the term, "Raynaud's disease," to refer to sudden massive gangrene of entire extremities.

Raynaud's Disease Studied and Redefined

In 1893, Hutchinson[3] found that attacks of local asphyxia, like those Raynaud described, could occur in scleroderma, and suggested they be called Raynaud's phenomena when secondary to a known disease, and Raynaud's disease when primary. This convention is now generally accepted, and within this framework researchers began making serious studies into the condition Raynaud introduced.

Around 1930, Eugene Landis[5] and Thomas Lewis,[4] both individually and cooperatively, published results of several studies concerning Raynaud's and allied vasospastic diseases. Lewis first sought to explain the local color changes Raynaud observed.

Blanched or cyanotic fingers, Lewis said, were indeed the cessation of blood flow. Such fingers would not bleed when cut, and would become numb in the same manner as if main vessels to the hand were occluded. Microscope studies showed no flow in the affected capillaries. Whether the fingers were blanched or cyanotic depended solely on whether gravity or motion was present to force blood from the veins when the attack began, and colors, therefore, need not pass from white to blue to red, as Raynaud insisted.

The red coloration of digits during the recovery phase was, in the opinion of Lewis, simply reactive hyperemia, identical to that demonstrable in any normal subject after cooling the hands. The hyperemia in Raynaud's disease and normal subjects differed in duration only.

In 1882, Weiss saw veins of the hand decrease in size during a Raynaud's attack, and assumed venospasm was present. Lewis strongly disagreed, and showed experimentally that the pressure applied to large veins was transmitted immediately to the venules.

Lewis also demonstrated that local cooling and heating of digits caused local spasm and recovery of vessels. Thus, he felt, Raynaud's disease could not be a general vasomotor nerve abnormality. This belief was supported by evidence that neither sympathectomy nor paralysis of the ulnar nerve with anesthetics would affect Raynaud's attacks. Thus, Lewis concluded that Raynaud's disease was caused by spasm of arterioles due to a local hypersensitivity to cold.

Later, Lewis studied the effects of sympathectomy on Raynaud's disease and concluded that the spasm of the digital vessels may be produced in Raynaud's disease by local cold after division of the sympathetic cord below the second dorsal ganglion and extirpation of this and the inferior cervical ganglion. The spasm of the vessels in this malady is not due to abnormal vasomotor impulses.[6]

In 1930, Landis studied capillary pressure in Raynaud's disease patients by the microinjection technique.[5] He found capillary pressure very low during Raynaud's attacks and higher than normal during recovery. There was no resistance to flow on the venous side. He concluded that arteriolar spasm alone was responsible for Raynaud's disease.

Landis also searched for pathologic changes in vessels of patients with Raynaud's phenomenon and could find no changes in patients with mild clinical symptoms, but found the intima of arterioles thickened in severe cases.[7]

In 1932, Allen and Brown[8] reviewed and analyzed Raynaud's cases and criteria. They concluded that Raynaud's cases did not fit his own description of the disease. Raynaud insisted that all arteries must

be patent, yet he did not tell the condition of the pulses on most patients. He stated that gangrene, when present, must be limited to the skin on the ends of digits, yet he included only the more severe cases. He said involvement was always symmetrical and intermittent, yet some cases were unilateral or with permanent color changes. In this manner, Allen and Brown accepted only four of Raynaud's original 25 patients as possibly having Raynaud's disease. They did admit that some vascular diseases had been discovered and defined since Raynaud's time, and vasomotor symptoms were only recently being accepted as secondary. They insisted that primary Raynaud's disease should be diagnosed only after ruling out arthritis, neuritis, cervical rib, thromboangiitis obliterans, arteriosclerosis, and pneumatic hammer disease. Accurate diagnosis was considered important as sympathectomy in the Allen and Brown study was more successful in true Raynaud's disease than in the secondary form.

The greatest contribution of Allen and Brown to the definition of Raynaud's disease was the requisites for diagnosis now known as the Allen and Brown criteria. The primary criteria are:

1. Intermittent attacks of discoloration of extremities.
2. Absence of evidence of organic arterial occlusion.
3. Symmetric or bilateral distribution.
4. Trophic changes, when present, limited to the skin and never consisting of gross gangrene.

Secondary criteria are:

1. Predilection for females (over 90% of cases were female).
2. Absence of pain is so striking that severe pain during the attacks is exceptional.

In 1936, John Hunt[9] reviewed the work done to date on Raynaud's disease. He agreed with Lewis that Raynaud's disease was due to a local fault rather than vasomotor tone, and went a step farther than Allen and Brown by stating that sympathectomy was contraindicated in all but primary Raynaud's disease.

Hunt listed a differential diagnosis of Raynaud's phenomenon, which had expanded to reflect the growing knowledge of vasospastic and other diseases. It included chilblain, frostbite, acrocyanosis, heart and lung lesions causing cyanosis of digits, enterogenous cyanosis, embolism, thrombosis, ergotism, thromboangiitis obliterans, syphilitic endarteritis, diabetes, phlebitis, cervical rib syndrome, poliomyelitis, pyramidal lesions, hysterical paralysis, rheumatoid arteritis, ringworm of the fingernails, traumatic neuritis, polyneuritis, and sclerodactyly.

In 1946, Naide and Sayen[10] attempted to show the presence of venospasm and Raynaud's disease; venospasm had been denied since Lewis and Landis works. Naide and Sayen felt that symptoms of Raynaud's disease could not be explained on the basis of arterial spasm alone. Their studies showed arterial spasm caused blanching without swelling. Arterial and venous spasm combined caused blanching, then cyanosis and swelling. Venous spasm alone caused cyanosis and swelling without blanching. In their patients, necrosis occurred only when arteries and veins were both capable of spasm. Because arterial spasm can occur as a reflex to venospasm to decrease congestion, Naide and Sayen felt that Raynaud's disease may often be primarily a venous phenomenon; and in view of information not available to Lewis, his studies can become consistent with venospasm.

As treatment for Raynaud's disease, Naide and Sayen recommend avoidance of cold, warm clothing, abstinence from tobacco, oral thyroid or occasional vasodilators, and estrogen for Raynaud's disease in menopause. Sympathectomy was to be reserved for severe cases.

In 1959, Mendlowitz and Naftchi[11] studied Raynaud's disease. Previously, they had found vasoconstriction in hypertension that was related to an increased sensitivity to norepinephrine. They could detect no such sensitivity in Raynaud's disease and, thus, supported the theory that Raynaud's disease was caused by increased vasomotor tone via increased sympathetic discharge.

Peacock[12] measured the levels of epinephrine and norepinephrine at the wrist in patients with and without Raynaud's disease. Levels of both, especially norepinephrine, were increased in Raynaud's patients, and the amount of the increase tended to reflect the clinical severity of the condition. Thus, the possibility that Raynaud's disease was mediated by epinephrine and norepinephrine was advanced.

In 1962, deTakats and Fowler[13] discussed sympathectomy as treatment for Raynaud's phenomenon. As vasoconstriction due to cold is increased threefold after sympathectomy, they suggested that the procedure is contraindicated in Raynaud's disease. The only indications for sympathectomy, therefore, were: (1) true neurogenic Raynaud's disease (diencephalic seizure) diagnosed by electroencephalographic presence of rapid spikes and fast patterns in the occipital areas; and (2) digital arterial occlusions due to various causes.

In 1971, Coffman and Cohen[14] studied capillary versus arteriovenous shunt flow in fingers of patients with the Raynaud's disease and control subjects using plethysmograph and radioisotope techniques. They found that only arteriovenous shunt flow decreased with cold in the controlled group, whereas capillary flow also decreased in Raynaud's disease

patients, with symptoms correlating to the change in capillary flow. Treatment with reserpine improved the flow, with addition of tolazoline to the regimen helping occasionally.

Most recent investigations into Raynaud's disease or phenomenon have involved a search for a successful therapeutic agent. Kontos and Wasserman[15] used large oral doses of reserpine with some success.

Willerson and Decker[16] showed that intra-arterial reserpine could improve blood flow in Raynaud's phenomenon both subjectively and objectively with effects lasting a mean of 18 days. They had no success with oral reserpine, but they used smaller doses of it. Most authorities agree that reserpine should be reserved for serious symptoms and not be used to treat nuisance complaints.

Fearnley and Chakrabarti[17] used phenformin plus ethylestrenol to improve one half of a small group of patients with Raynaud's disease, but the drugs were used only for several months. The results were, therefore, inconclusive.

Varadi and Lawrence,[18] working from the hypothesis that Raynaud's phenomenon was caused by high catecholamine levels in vascular walls, used methyldopa to treat patients with Raynaud's disease or phenomenon. It is known that methyldopa depletes norepinephrine storage granules. Methyldopa improved 75 per cent of the patients with Raynaud's phenomenon—the most successful treatment reported in literature—secondary to scleroderma, and 11 of 15 patients with primary Raynaud's disease. They recommended that this drug also be reserved for serious symptoms.

Recently, Allen[19] tested the vasodilator effects of griseofulvin on 12 patients demonstrating Raynaud's phenomenon. All showed increased skin temperatures, and a more rapid recovery rate with treatment.

To date, no aspect of Raynaud's disease is fully researched and unanimously accepted. However, progress has been made and Raynaud's disease is now a definable entity with predictable symptoms, rational though questionable etiologies, and effective though imperfect treatments.

Summary

Nearly all that remains of Raynaud's original concepts is his description of the attacks of local asphyxia. His criteria for diagnosis, suggested etiology, and recommended treatment have all been modified by succeeding authorities. Thus, the clinical condition Raynaud described has evolved to the following state.

Raynaud's Attacks (or attacks of Raynaud's phenomenon) are currently described as transient ischemic episodes secondary to vasospasm of digital vessels. Coloration of the digits usually passes from white to blue to red, sensory loss, and pain; gangrene may or may not be present.

Raynaud's Phenomenon (or secondary Raynaud's phenomenon) are Raynaud's attacks secondary to another known disease—neurovascular disease, organic vascular disease, toxins, trauma, collagen diseases, and others previously mentioned.

Raynaud's Disease (or primary Raynaud's phenomenon) is Raynaud's attacks of primary etiology conventionally diagnosed by the Allen and Brown criteria referred to earlier.

Predisposition: sex is female in 5 of 6 cases, age at onset is usually within the first two decades, and disposition is often nervous.

Contributing factors: cold and strong emotions most commonly provoke attacks in Raynaud's disease.

Sequelae: mild gangrene leading to atrophy or scarring of the tips of digits, degeneration of the terminal phalanges, or, very rarely, loss of part of a finger can occur.

Etiology: Raynaud's disease is considered to be due to spasm of the arterioles, and possibly venules, due to a local hypersensitivity of vessels to cold. The importance of vasomotor innervation or catecholamine levels is uncertain. There is thickening of the intima of vessels only in more severe cases of Raynaud's disease.

Treatment: The first order of treatment is the reassurance of patient that Raynaud's disease is seldom a severe illness, and advice to avoid cold, trauma, and tobacco. Medications must be used after considering possible gains versus possible side effects. Reserpine is used with success in more severe cases, but it causes depression. Local nitroglycerine rubs offer brief relief, but cause headaches. Tolazoline, methyldopa, and griseofulvin have also been used with some success, and estrogens are recommended for Raynaud's disease in menopause.

Thus, Raynaud's disease has become a definable condition, and Raynaud accomplished his stated goal. He gathered facts for study and he formed a basis for the development of a clinical entity.

References

1. Raynaud, M.: *Local Asphyxia and Symmetrical Gangrene of the Extremities.* Translation by T. Barlow. London, the New Sydenham Society, 1888, p. 8.

2. Raynaud, M.: *New Researches on the Nature and Treatment of Local Asphyxia of the Extremities.* Translation by T. Barlow. London, the New Sydenham Society, 1888, p. 99-101.

3. Hutchinson, J.: Inherited liability of Raynaud's phenomenon. *Arch. Surg.* 4:312, 1893.

4. Lewis, T.: Experiments relating to the peripheral mechanism involved in spasmodic arrest of the circulation

in the fingers; A variety of Raynaud's disease. *Heart* 15: 7-101, 1929.

5. Landis, E.: Micro-injection studies of capillary blood pressure in Raynaud's disease. *Heart* 15:247-255, 1930.

6. Lewis, T. and Landis, E.: Some physiological effects of sympathetic ganglionectomy in the human being and its effect in a case of Raynaud's malady. *Heart* 15:151-176, 1930.

7. Landis, T.: Further observations upon a variety of Raynaud's disease; with special reference to arteriolar defects and to scleroderma. *Heart* 15:329-350, 1931.

8. Allen, E. and Brown, G.: Raynaud's disease: A critical review of minimal requisites for diagnosis. *Amer. J. Med.* 183:187-200, 1932.

9. Hunt, J.: The Raynaud phenomenon: A critical review. *Quart. J. Med.* 5:399-444, 1936.

10. Naide, M. and Sayen, A.: Venospasm: Its part in producing the clinical picture of Raynaud's disease. *Amer. J. Cardiol.* 4:580-584, 1959.

11. Mendlowitz, M. and Naftchi, N.: The digital circulation in Raynaud's disease. *Amer. J. Cardiol.* 4:580-584, 1959.

12. Peacock, J.: Peripheral venous blood concentrations of epinephrine and norepinephrine in primary Raynaud's disease. *Circ. Res.* 7:821-827, 1959.

13. DeTakats, G. and Fowler, E.: The neurogenic factor in Raynaud's phenomenon. *Surgery* 51:9-18, 1962.

14. Coffman, J. and Cohen, A.: Total and capillary fingertip blood flow in Raynaud's phenomenon. *New Eng. J. Med.* 285:259-263, 1971.

15. Kontos, H. and Wasserman, A.: Effect of reserpine in Raynaud's phenomenon. *Circulation* 39:259, 1969.

16. Willerson, J. and Decker, J.: Raynaud's disease and phenomenon; a medical approach. *Amer. Heart J.* 82:572-573, 1971.

17. Fearnley, G. and Chakrabarti, R.: Phenformin and ethylestrenol for Raynaud's disease. *Lancet* 2:1203, 1969.

18. Varadi, D. and Lawrence, A.: Suppression of Raynaud's phenomenon by methyldopa. *Arch. Intern. Med.* 124:13-18, 1969.

19. Allen, B.: Griseofulvin in Raynaud's phenomenon. *Lancet* 2:840-841, 1971.

Splenic Arteriovenous Fistula

(Continued from page 225)

Summary

The etiology, clinical findings, diagnosis, and management of splenic arteriovenous fistulae are discussed. Angiography to demonstrate the precise site of the fistula is essential. Splenectomy and resection of fistula are recommended for the treatment.

References

1. Weigert, V. C.: In die mitzvene geborstenes aneurysma einer milzarterie. *Arch. Path. Anat.* 104:26-30, 1886.

2. Tada, Y.; Ueno, A. and Yasuyuki, A.: Congenital intrasplenic arteriovenous fistula associated with two splenic artery aneurysms. *Jap. Heart J.* 10:561-566, 1969.

3. Bayindir, S. and Graebner, H.: Arterio venose fistel zwischen arterie und vena leinalis nach splencktomie. *Fortschr. Roentgenstr.* 105:279, 1966.

4. Quintiliani, R. and Ganguli, P.: Splenic arteriovenous fistula with bacterial endarteritis and endocarditis. *JAMA* 214:727-730, 1970.

5. Murray, M. J.; Thal, A. P. and Greenspan, R.: Splenic arteriovenous fistulas as a cause of portal hypertension. *Amer. J. Med.* 29:849-856, 1960.

6. Buchholz, R. R.: Arteriovenous fistula of the splenic vessels. Report of a case following splenectomy. *Ann. Surg.* 149:590-592, 1959.

7. Cassell, W. G.; Spittel, J. A., Jr. and Ellis, F. H., Jr.: Arteriovenous fistula of the splenic vessels producing ascites. *Circulation* 16:1077-1083, 1957.

8. Stone, H. H.; Jordan, W. D. and Acker, J. J.: Portal arteriovenous fistula. Review and case report. *Amer. J. Surg.* 109:191-196, 1965.

9. Sigwart, H.: Portaler hochdruck durch arteriovenoses aneurysma der milzgeffase. *Chirurg* 24:318-319, 1953.

10. Stener, B.: Arteriovenous shunt in the spleen diagnosed before operation. *Acta Chir. Scand.* 108:344-350, 1955.

11. Vallabhdas, V. S.; Mehtalia, S. D.; Shah, K. D. *et al:* Splenic arteriovenous fistula. *Angiology* 18:23-27, 1967.

12. Johnston, G. W. and Gibson, J. B.: Portal hypertension resulting from splenic arteriovenous fistulae. *Gut* 6: 500-502, 1965.

Cardiac Transplantation

(Continued from page 227)

3. Crosby, I. K. and Reed, W. A.: Heart transplantation: The effect of pretreatment with antilymphocyte serum. *Amer. J. Surg.* 118:938, 1969.

4. Crosby, I. K.; Taylor, T. L. and Reed, W. A.: Intra-abdominal storage of the transplanted canine heart. *Arch. Surg.* 99:728, 1969.

5. Bui-Mong-Hung and Vigano, M.: Techniques de transplantation cardiaque intra-abdomina chez le rat. *Presse Med.* 75:2047, 1966.

6. Ono, K.; Lindsey, E. S. and Creech, O.: Effect of irradiation on function of rat heart homografts. *Surg. Forum* 18:225, 1967.

7. Abbott, C. P. *et al.:* A technique for heart transplantation in the rat. *Arch. Surg.* 89:645, 1964.

8. Wilkins, Robert L.: Disease of the peripheral vessels. Beeson, Paul B. and McDermott, Walsh (eds.), *Cecil-Loeb Textbook of Medicine.* Philadelphia, W. B. Saunders Co., 1963, pp. 780-781.

9. Mac Millain, R. L. and Mustard, J. F.: The Role of Heparin in the Induction of Anticoagulant Therapy. International Symposium on Anticoagulants and Fibrinolysins, 1961, p. 323.

10. Wintrobe, Maxwell M.: *Clinical Hematology,* ed. 5. Philadelphia, Lea and Febiger, 1961, p. 296.

11. Leavell, B. S. and Thorup, Oscar A., Jr.: *Fundamentals of Clinical Hematology.* Philadelphia, W. B. Saunders Co., 1960, pp. 246-247.

12. Porter, K. A.: Rejection in the treated renal allografts. *J. Clin. Path. Suppl. (London)* 20:518, 1967.

13. Shumway, N. E.; Lower, R. R. and Stofer, R. C.: Transplantation of the heart. *Advances Surg.* 2:265-284, 1966.

14. Lowenhaupt, R. and Nathan, P.: The participation of platelets in the rejection of dog kidney allotransplants: Hematologic and electron microscopic studies. *Transplant. Proc.* 1:305-310, 1969.

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The President's Message

Physicians practice medicine. Those who practice medicine have a vested interest in their patients. No other person or group of people really have the total interest of the patient in the same manner as does the physician. We are taught to treat our patients as individuals—not as diseases—and as individuals who live in a community. We develop a rapport with our patients in their environment. We institutionalize our patients in community facilities such as hospitals or nursing homes. We obtain social services from various community (whether state or local) organizations. We prescribe through pharmaceutical outlets. We see patients on an "out-patient" basis in our offices, in their homes, or in their place of employment. We care for our patients. We are committed to offering to them the best of medical care which is obtainable. We must be the advocate of defending our patients their rights to individuality, confidentiality, and their right to access of health care.

Can any other medical "vendor" assume the same obligations or provide the same service? Can we assume that any type of governmental control of almost any facet of medical care will insure our patients their rights for individuality, confidentiality, and good quality health care?

WE DO HAVE A VESTED INTEREST. Be proud of it.

Thomas F. Taylor

President

Rural Practice: What Health Professionals Look For

G. CHARLES LOVELAND, M.D.,* ***Kansas City, Kansas***

There have been numerous studies in recent years which document a lamentable trend in regard to rural health care in the United States. In the course of this century, the physician to population ratio in rural and semi-rural areas has dropped markedly. The median age of physicians in non-urban areas is higher than for the urban areas. One could cite many specific and general examples illustrating the conclusion that rural Americans suffer inadequacies in the delivery of health care. It is the young health professional who will change these trends if they are to be changed, as the established professional is unlikely to move or change the location of his practice. What are the factors pro and con which affect the decision of today's medical student to practice in a rural area?

Medical education itself poses several obstacles in the path of the prospective rural physician. Emphasis on specialty training and specialty practice in the last quarter century has convinced uncounted young physicians to choose non-rural practice locations. We are told and learn to accept the statement that specialty and subspecialty practice are inconsistent with rural locations. The complex and exciting advances in medical science taught and practiced in medical education centers are commonly thought to be impractical and nonexistent outside the urban areas. The full range of clinical and laboratory support services are generally concluded to be absent in rural and semi-rural America.

In the medical center, the concept of the L.M.D. (local medical doctor) is that of a rather unsophisticated, overworked, and marginally competent practitioner who turns over all but the simplest of his patient care problems to the Ivory Tower. In general, many students view rural practice as a situation in which the physician is overworked, medically isolated, and never has a vacation. It is thought that his children attend second-rate schools, that he faces lifelong cultural and social deprivation, and that his wife complains about his 24-hour-a-day call schedule in addition to everything else. Thus, at the end of four years of medical school and several years of postgraduate training in the urban medical center complex, with all of the attendant medical, educational and social advantages, the young physician must indeed be highly self-motivated to seek a rural practice.

There are several factors which help break down the barriers of myth and misconception concerning rural practice. One is the ever expanding role of family practice. It is important to recognize that not every family practitioner is a rural physician; however, personal acquaintance with a number of medical students across the country leads us to believe that a majority who enter family practice will locate in non-urban areas.

Another factor is recent efforts to use the community hospitals for training medical students and resident physicians. This community hospital experience allows the student exposure to the real world, in a medical sense, an experience not possible in the highly technical, academic atmosphere of the university teaching hospital. Thus, the medical student is in close association with practicing physicians who have day-to-day responsibilities for the health of the community in which they live and work. This provides the student with a range of role models that includes the private practicing physician, and a range of practice models that includes something in addition to the academic university hospital.

Several studies have shown that rural physicians tend to have rural origins, and that urban physicians tend to have urban origins. It is unlikely that med-

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* The paper was written while Dr. Loveland, senior medical student then, served as chairman of the Student American Medical Association Health Manpower Task Force.

The paper was presented to the 26th AMA National Conference on Rural Health, Dallas, Texas on March 29, 1973.

ical schools will ever admit only rural applicants in order to insure that a higher percentage of graduates will choose rural practice. However, the point remains that traditionally there is a group of students likely to return to rural or semi-rural areas to practice. Those people interested in promoting the practice of rural medicine, from the federal government to the county medical society, will do well to remember these students.

It must be stressed that students in general are keenly aware of deficiencies in rural health care delivery. Many seek and are now finding the proper circumstances which take them to non-urban practice settings. At the University of Kansas, for example, a preceptorship program places senior medical students with physicians across the state of Kansas for a month-long, non-medical center experience. Through this mechanism many students realize that rural and semi-rural medicine is as exciting and rewarding as the medicine practiced in a medical center. They see that physicians need not be driven into the ground through overwork. They see that they can and do cooperate in night and weekend call rotations to allow some leisure time. They see that the utilization of competent and very useful paraprofessional personnel helps upgrade the quality of non-urban health care. Not everyone is convinced to enter rural medicine, nor is every such preceptorship experience rewarding, for medical or personal reasons. However, many students appreciate and enjoy the non-medical center experience. They see the benefits of rural and semi-rural life, and realize that the trite concept of the L.M.D. is indeed inconsistent with non-urban medicine.

Experiences such as those found in the summer student health projects directed by the Student American Medical Association also encourage rural practice. Through the SAMA projects in rural Appalachia, the Indian reservations of the north and the southwest, and the migrant workers camps in Colorado, hundreds of student health professionals first see the health care needs of rural America and first try to help solve them.

As the student is exposed to health team practices, to group practice concepts, to alternate payment systems and so on, it becomes obvious that these ideas are as useful in rural areas as in the urban centers. However, these rather nontraditional ideas are seldom given coverage in medical education, and are almost never stressed in relation to rural practice.

In summary, the question is less of what medical students look for in rural practice and more of what we are led to believe rural practice is. If we are taught that the L.M.D. is a bumpkin, few of us will want to be an L.M.D. If we are taught that rural practice is an unrewarding string of sleepless nights and frustrating days complicated by professional isolation and a lack of facilities, most of us will opt out. If we are led to believe that non-urban America is a vast cultural, social, and educational wasteland, few of us will venture out.

However, if in the educational process we can realistically demonstrate the nature of rural practice, its great rewards and its actual faults; and if we can provide enough public and private financial and resource support, rural America has a chance of achieving health parity with urban America. The future physicians of rural America are there, don't run them off.

Vox Dox

Vox Dox Editor:

The Ludhiana Christian Medical College in northern India has been training doctors, nurses, and paramedical personnel for India's millions since 1894. It is an interdenominational international institution supported by 22 different mission boards from 11 different nations.

Ludhiana's graduates are staffing mission hospitals in remote parts of India; they are helping the new country of Bangladesh to establish hospitals and set up good medical care; they are serving as specialists all over the world. Ten years ago, every department of the Christian Medical College Hospital was headed by a foreign doctor. Now, most of the department chairmen are C.M.C. graduates. Dr. Lionel Lobo, a specialist in orthopedics trained at C.M.C., is principal of the medical school. Dr. Mary Mathews heads the department of internal medicine. Dr. C. S. Gill, after having advanced work in heart surgery in the United States, including work with Dr. DeBakey in Houston, is the heart surgeon.

The problem is that with inflation around the world and seriously reduced missions giving, the Christian Medical College has reached a serious financial crisis. It costs $1,380 a year to train a doctor at C.M.C. The student is charged only $290 a year, which is a large amount in India. This leaves a deficit balance on each student of $1,090, or an annual deficit to the school of $327,000 for the 300 students in training.

Currently, I am making an effort to stimulate contributions toward the development of a scholarship endowment fund of $500,000, and invite the participation of Kansas physicians in this effort.

Contributions are tax deductible, and may be forwarded to me.

Gerald V. Hartman, M.D.
K.U.M.C.
Kansas City, Kansas 66103

Kansas Foundation for Medical Care

Official Proceedings, Corporate Members Meeting

The first annual meeting of the corporate members of the Kansas Foundation for Medical Care was held on Sunday, May 6, 1973 at the Holiday Inn Plaza, Wichita, at 1:00 p.m. Francis T. Collins, M.D., President, called the meeting to order.

Dr. Collins reminded those present the bylaws call for a meeting of the corporate members to be held on the first day of the annual meeting of the Kansas Medical Society. To change the meeting date will require a change in the bylaws.

It was pointed out there are two types of membership. Any member of the KMS House of Delegates is automatically a CORPORATE member of the Kansas Foundation. This is the ruling body of the organization. Those who have signed up for membership are PARTICIPATING members, who agree to abide by the regulations of this organization.

Dr. Collins reiterated that until specific guidelines are developed on the national basis no definite statements about the future course of the Foundation can be made. He then introduced Edward J. Ryan, M.D., Emporia, the Peer Review Project Director.

Dr. Ryan stated that some 50 per cent of the total goal for organizing an effective and efficient peer review program in Kansas had been achieved. This is a difficult organizational task which requires much cooperation. He summarized the peer review program as follows.

Why Peer Review. Peer review represents an effort on the part of organized medicine to combat highly organized elements in and out of government whose objective is to totally control the delivery of medical care. For some reason, the medical profession is the only profession singled out and placed in the position of having to submit evidence of professional qualifications and justification for professional charges.

What is Peer Review. An understanding of peer review is derived from the following definitions:

1. Peer: one of the same rank, quality training, and standards.

2. Claims review: review of individual charges submitted by a physician for any patient or intermediary third party.

3. Utilization review: a study of frequency of charges or determination of deviations, if any.

4. Medical audit: an analysis of records to determine whether the essentials of care are documented and adequate.

All of the above, plus mediation and advice to physicians, comprise the concept of peer review. The purpose and goal of peer review is to assure maximum quality, quantity, and economy in the delivery of health care. It is not a punitive but an educational function. Peer review of some type will be rendered on a continuous basis on all claims submitted.

Dr. Ryan stated that with physician cooperation, the Kansas Foundation will be active next fall. He proposed the following committee structure.

1. As the first stage of organization, a STATE PEER REVIEW COMMITTEE will have the supervisory and planning capacity, as well as appellate function when needed. It will supervise, adjudicate, advise.

For the membership on this committee, Dr. Ryan submitted the names of Drs. Thomas P. Butcher, Emporia; Louis M. Culp, Kansas City; Robert K. Purves, Wichita; Lucien R. Pyle, Topeka; Edward J. Ryan, Emporia; Sloan J. Wilson, Kansas City; plus another member as yet unnamed, for the overall supervision.

The osteopathic physicians of Kansas have been in contact with the Foundation and have been cooperative. They propose a separate osteopathic state review committee, and also that each Council district committee have an osteopathic physician in an advisory capacity, for cases involving osteopathic charges.

2. The second stage in peer review structure would be based on five committees, consisting of 4-6 physicians each, selected on the geographical basis over the state. These committees would meet twice a month in Wichita, Salina, Topeka, Kansas City, and Hays. They will perform some 90 per cent of the work and will replace the existing Blue Shield review committees, including PURP. These committees would be answerable only to the Foundation. They would serve all patients and all intermediaries.

3. It is recommended that each *specialty* society and the Academy of Family Practice appoint advisory committees to be available to the peer review

committees on demand, to be used in situations where the five committees cannot decide without expert advice.

All societies have been cooperative.

4. COUNCIL DISTRICT peer review committees would assist in utilization supervision in each hospital at the local Council district level. It is deemed important that decision-making and control be retained at the local level. These committees will function on demand basis, and will make peer review available at the local level.

5. The present IN-HOSPITAL program will be continued, as it now exists.

There followed a question and answer period.

Thomas P. Butcher, M.D., Emporia, asked what the relationship was between the in-hospital utilization committees and the proposed local committees. —The in-hospital committees are already operational. The Council district committees would be available for advice on the local level.

Dr. Ryan stressed that peer review will function under standards proscribed at the national level. Of necessity, initially, all screens will be basic. As the activities of the Foundation expand, the screens will become the major function of the state-level peer review committees. The Kansas Foundation will formulate its own guidelines and screens, but as a beginning, it could borrow what it needs from other states. Iowa, Michigan and New Mexico already have effective programs. Kansas could gain from the experience obtained in other states.

There was no report by the Executive Secretary, as the activities of the organization did not warrant such.

President Collins repeated the expectation of having an active Kansas Foundation operational next fall. The next meeting of this body will be called to coincide with the meeting of the KMS House of Delegates in the fall. Final approval from both bodies is anticipated at that time.

Dr. Collins announced that Kansas is a member of the American Association of Foundations for Medical Care.

M. Robert Knapp, M.D., Wichita, asked how the Foundation can operate without funds.—Kansas Foundation will not purchase any computer "hardware," etc. If peer review functions as envisioned, Blue-Cross-Blue Shield will contract to have their peer review done and will pay $50,000 a year for this service. Other insurance companies, the federal government (on Titles 18 and 19), and other governmental agencies will be on a paid basis. This money is available now.

A suggestion was made that the American Medical Association, in its effort to educate the public of the reasons for high cost of medical care, should point out that projects like PSRO will add to the cost of medical services. Titles 18 and 19, and commercial insurance companies incorporate this expense in their cost structure; this added cost does not diminish the total cost for medical care.

It was pointed out that the physicians should be reimbursed for their service on peer review committees. This must be considered a professional service and will be paid as such. No specific amounts have as yet been established, but the service will probably be computed on an hourly basis. By accepting a payment from a vendor, the physician will not become an agent of the vendor; the physician is an agent of the Foundation.

Chester M. Lessenden, Jr., M.D., Topeka, moved that Dr. Collins be commended for his service to the Kansas Foundation. This was approved.

It was brought out that the Oklahoma Medical Society rejected the concept of and refused to participate in PSRO. Clair C. Conard, M.D., Dodge City, did not believe Oklahoma's decision will block the development of PSRO. It would be to the physicians' advantage to be reviewed by peers, rather than by a governmental agency. The AMA House of Delegates has opposed PSRO. The union concept is reprehensible. Foundation is seen as the necessary intermediary step abie to preserve private practice. It gives the physician the bargaining power and it preserves private practice. It should be supported because it preserves private practice, retains the control in the hands of the physicians, and eliminates unionism in medicine.

There being no further business, the meeting adjourned.

Board of Directors Meeting

A meeting of the Board of Directors of the Kansas Foundation for Medical Care was held on Sunday, May 6, 1973, following the meeting of corporate members and immediately preceding the first meeting of the House of Delegates of the Kansas Medical Society.

Present were Francis T. Collins, M.D., President; Drs. Philip J. Antrim; F. Calvin Bigler; John N. Blank; Arthur C. Cherry; Galen W. Fields; Kenneth L. Graham; Herman H. Hiesterman; John D. Huff; M. Robert Knapp; Robert H. Kurth; S. C. McCrae; John C. Mitchell; William H. Mitchell; Walter C. Niederee; Ivan E. Rhodes; E. A. Rundt; Edward J. Ryan; Ross T. Shook; Donald J. Smith; Thomas F. Taylor, and Emerson D. Yoder.

Dr. Collins, President, called the meeting to order

and stated the order of business will be conducted on the basis of the agenda submitted to the Directors in advance.

The minutes of the September 24, 1972 meeting of the Board of Directors had been approved by the 1972 Fall meeting of the KMS House of Delegates.

Dr. Collins briefly reported on the meeting of the corporate members, saying the membership of the Foundation is increasing. He also reported on the presentation made to that body by Edward J. Ryan, M.D., Peer Review Project Director.

President Collins noted that there was concern about PSRO. However, it is generally accepted that review will be conducted, that in effect review is being conducted, and it is only a question of whether the physicians will do it through peer action, or someone else will do it. Dr. Collins reported he received strong indications of approval for the work done so far, and he announced that Dr. Ryan will continue in his capacity as the project director. Dr. Collins then asked for comments and suggestions.

M. Robert Knapp, M.D., Wichita, expressed the opinion that many physicians do not understand the effort of the Kansas Foundation, and a greater educational effort needs to be undertaken in this direction.

In the discussion that followed, it was pointed out that the utilization review at the state level, as performed by the PURP committees of Blue Shield, was objectionable. Peer review at the local level would be welcome.

The next item on the agenda concerned the election of officers. A motion was duly made and seconded that all present officers be continued for one more year. This was adopted.

While the continuity of office was seen as important in the developmental stages of the organization, more people should be involved in the operation of the Foundation.

Dr. Niederee moved that a committee be appointed to form a nominating committee prior to the next annual meeting, at which time a slate of qualified officers would be presented. Dr. McCrae seconded this motion and it carried.

The President announced the following project appointments for the coming year:

Utilization: George J. Mastio, M.D., Wichita

Peer Review: Edward J. Ryan, M.D., Emporia

Third-party Relationships: Phillip A. Godwin, M.D., Lawrence

It is anticipated that secretarial help will be required to handle the ever-increasing volume of work. The office of the Foundation will remain at the KMS Executive Office. The Kansas Medical Society will loan the necessary funds to meet the expenses until the Kansas Foundation becomes self-supporting.

There being no further business, the meeting adjourned.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Benjamin H. Artiles, M.D.
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Larned, Kansas 67550

Agenes M. Aves, M.D.
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Parsons, Kansas 67357

Renato B. Aves, M.D.
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Lewis T. Bloom, M.D.
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Wichita, Kansas 67208

James F. Burpee, M.D.
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William H. Campbell, M.D.
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R. E. Cohnberg, M.D.
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Chanute, Kansas 66720

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Wichita, Kansas 67214

John Wertzberger, M.D.
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Lawrence, Kansas 66044

Ruth M. Yohe, M.D.
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Official Proceedings

1973 Meeting of the House of Delegates

Transactions of the 114th Annual Session of the Kansas Medical Society are published in this issue of the JOURNAL.

Resolutions not previously published in the JOURNAL were introduced and referred to Reference Committee A (John C. Mitchell, M.D., Salina, Chairman), or Reference Committee B (Warren E. Meyer, M.D., Wichita, Chairman).

The resolutions are printed in numerical order under the minutes of the Second House of Delegates. Although they appear in the minutes of the Second House, Resolutions 73-16, 73-17, 73-38, 73-42, and 73-47 were adopted at the meeting of the First House on Sunday, May 6, 1973.

The resolutions which failed to pass are retained in the minutes at the Executive Office, but are not recorded here.

FIRST SESSION

The first session of the House of Delegates met on Sunday, May 6, 1973 beginning at 3:00 p.m. at the Holiday Inn Plaza, Wichita.

The meeting was called to order by Clair C. Conard, M.D., Speaker, who explained the composition of the House and placed some rules before the body which he said would be followed until such time as the House elected to challenge them.

Upon a motion by Kenneth L. Graham, M.D., Leavenworth, the minutes of the November 1972 meeting of the House of Delegates were approved.

Following this, the Speaker called upon John N. Blank, M.D., Hutchinson, to introduce Senator Wesley Sowers, who was visiting the House as a guest. Senator Sowers reviewed the 1973 Kansas legislative session. He anticipated a surplus of $30 million in the state treasury.

The House heard the following reports:

Editor of the JOURNAL—David E. Gray, M.D., Topeka.

President of KaMPAC Board—Vale Page, M.D., Plainville.

President of Woman's Auxiliary—Mrs. John B. Jarrott, Hutchinson.

PR-Information Service—Mr. Hank Parkinson, Wichita.

Vice Chancellor for Health Affairs, University of Kansas School of Medicine—Frank A. Rieke, M.D., Kansas City, Kansas.

Kansas Foundation for Medical Care—Francis T. Collins, M.D., Topeka.

Legislative Committee Chairman—John N. Blank, M.D., Hutchinson.

Executive Director—Mr. Oliver E. Ebel, Topeka.

Constitutional Secretary—Phillip A. Godwin, M.D., Lawrence.

Treasurer—Chester M. Lessenden, Jr., M.D., Topeka.

President—Kenneth L. Graham, M.D., Leavenworth.

The Editor

For once, your Editor is at a relative loss for words. For several years, the report of the Editorial Board has consisted of a repetitive recital of its financial woes. Then, last year, the House of Delegates, with its usual farsighted wisdom, authorized an increase in the subscription rate and the JOURNAL finds itself almost embarrassingly solvent. My regret at being unable to make the annual poverty pitch is compensated by the heady feeling that we are viable and can file temporarily the plaintive pleas you are accustomed to hearing. I might add that your grateful Board, in a fitting gesture of austerity, has voted itself only one steak dinner during the entire year, a course record.

It is a pleasure to report improvement in our intellectual as well as financial status. During the year, Dr. D. Cramer Reed of Wichita joined the Board as an Associate Editor. As Dr. Jesse Rising has so ably done for many years in Kansas City, Dr. Reed will help us in the procurement and coordination of articles from the Wichita area, particularly the Wichita branch of the Medical School. I am sure you are all sufficiently acquainted with this gentleman to recognize the wisdom of our choice. Now if we could only get someone in Topeka.

Despite the fact that she will be proofreading this before it goes into the JOURNAL, I cannot resist the opportunity to reaffirm my heartfelt admiration for your Managing Editor, Val Braun. I continue to be amazed at the energy, the organization, the capability, and with it all, the unshakeable good nature of this girl. I could say more, but I am afraid she would delete the whole report. The Business Manager deserves commendation, of course, but since he is not used to complimentary remarks, I shall spare him more than token mention.

I issue the annual reminder that the JOURNAL is yours and welcomes your comments and suggestions. Its columns are available as a forum for your opin-

ions with only the reasonable (we think) qualification that your name be on them. Remember that a picture is worth ten thousand words, so if you get to ten thousand words, just send us your picture.

I cannot close this uncharacteristically cheerful report without a note of warning. Publication costs have been increased twice in the past year—once because of labor and once because of an increase in the cost of paper. We shall return.

Woman's Auxiliary

There's a popular song that goes like this: "Round, like a circle in a spiral, like a wheel within a wheel. . . ." I can't say that I've been too much of a wheel, but rather more like a hubcap for the whole wheel of the Auxiliary. I will say that at times I've been in somewhat of a spiral, maybe even in a dead spin, meeting deadlines, making speeches, and so forth.

But it has been fun and wonderfully rewarding, thanks to you, the members of the Medical Society who back us, and to the Auxiliary officers, chairmen, and members who really did the work.

In making a report to the House of Delegates for the year, probably the biggest problem is knowing when to stop. However, I will try to cover some of our more important committees and activities this year.

After Mrs. Pyle and I attended the AMA, the National Fall Conference for Officers and the North-Central Regional Workshop, we were well-schooled in what we needed to know about all phases of Auxiliary activities. These meetings were followed by five regional workshops in Kansas directed by Mrs. Phillip Godwin and Mrs. Emerson Yoder, which were day-long sessions held in Lawrence, Sabetha, Norton, Great Bend, and Halstead. Legislation, AMA-ERF, Community Health (including nutrition) and Safety were the requested areas from national. We added Mental Health and Children and Youth, which included facts about VD and showing the film "VD, A New Focus." The workshops were well-attended and the women carried the information back to their members and used it, because reports at the end of the year indicate many successful county programs. We plan to continue the workshops next year, with sessions booked at Ness City, Ottawa, Atchison, Meade, and Wellington.

In addition to the workshops, we spent most of last summer and all fall getting the Health Educations Resources van together and in working order to put it on the road this spring. HER, as we call the van, is quite a lady. You can't miss her because of her beautiful yellow paint job with the orange, turquoise, green, and black lettering. Inside, the same colors are carried out in carpeting, paneling, and in 12 display panels by the following agencies: the University of Kansas Medical Center, Wichita State University College of Health Related Professions, the Kansas State Dental, Nurses, Medical Technicians, X-ray Technicians, Department of Health, Public Health Associations, the Physical Therapy Association, Medical Assistants, Kansas Academy of Family Physicians, and the Kansas Health Museum. Credit plaques are included for the Kansas Medical Society and the Auxiliary. There is a ten-minute puppet show about nutrition in a continuous projector that grade and junior high school students love. The Halstead Health Museum provided this show. Next, we should add some slide presentations for high school and junior college levels. The bus has been on the road since early March and is booked solid through May. Requests are coming in for fall. Packets of information and instructions are sent to schools and the people requesting the bus prior to its arrival. It has been in Harper, Sedgwick, Saline, Reno, and Ness counties. It has also been at Liberal, Topeka and Minneola, and is going back to Wichita for two more sessions. Expenses on the bus to date are as follows: Received: $2,176.73 ($1,550 from the Kansas Medical Society, the rest from contributions). Disbursements: $1,472.24 without the projector, screen and installation, which will be approximately $500. Our present balance without this item is $704.49.

In addition to the bus, we instituted another first in our state: the addition of an Auxiliary member to the Kansas Medical Society legislative committee. Mrs. Dean Burnett, or her co-chairman Mrs. Alan Sanders, went to each of the weekly committee meetings in Topeka during the legislative session. At the request of the National Legislative Chairman they used the LEGS Alert-Line once to support the AMA's position on Senator Kennedy's HMO bill S14. At the state level they used the same women to promote Kansas Medical Society positions on House Bill No. 1113 regarding the reduction of the statute of limitations, and for No. 1065, which exempts physicians from registering under the Board of Pharmacy. Letters, calls, personal visits, and telegrams were used.

The International Health Activities Committee reports a total of $121,000 from the 1972 Walk for Mankind in Wichita, of which 80 per cent was for Project Concern and 20 per cent for local community charities. This year on April 14, approximately 14,000 persons made the walk in the rain. However an estimation of money made is not available yet. The committee also packed and shipped 439 barrels of drugs, medical supplies, and thousands of items including everything from surgical instruments and layettes to quilts and children's dresses for a total of 16,940 pounds to Project Concern and 5,167 to

World Medical Relief. In addition, an EKG machine, 2 x-rays, and $758.25 in cash were contributed.

As of May 1, our total AMA-ERF contributions were $17,389.52, $11,752.54 of which was from Auxiliary members, the rest from physicians. A check has been received from the national AMA-ERF committee for $18,058.67, which includes our share of the undesignated funds from all states.

Our AMA-ERF chairman asks you to please consider making a $1 donation on a 10-speed bicycle which has been donated and will be given away at the Tuesday banquet. The winner's county will receive the credit for the donations. The bike is worth $150.

We added something at convention this year too, a scientific session. Dr. Tom Kendall, a Wichita plastic surgeon, will speak to the women on Monday morning at 9:30, and Blackbear Bosin, an Indian artist, will talk on "From Medicine Man to Modern Medicine." You are all invited to come, but will be asked to pay the $3.50 admission price.

We added something else this year, besides a few additional members, upping our membership from 1,123 to 1,144 in spite of some dropouts. Butler County organized a new 10-member Auxiliary with Mrs. James Shields as president. However, like a drooping houseplant, "we gained a leaf and lost one," as Seward County decided to disband and be members-at-large.

We established an ecology committee this year, and added a WASAMA group in Kansas City, which gives us two student representatives on our board.

All of our committees and counties have worked toward something. Shawnee County trained 157 Gems (baby-sitters) and Harvey County trained 18. Several counties helped with blood donor campaigns. Mental Health was stressed in 19 counties, with both groups and individuals participating in programs. I would estimate that every Auxiliary activity or project was promoted by one or more counties this year.

Following the workshops I did a survey, sending out 200 letters to county presidents, workshop attendees, state officers, and chairmen. I asked how far they traveled, if they preferred workshops to individual visits by the president or some other alternative, and where they liked to have the workshops. The report indicates that most of them traveled up to 100 miles except for the officers and chairmen who worked the whole state, and that they prefer the workshops to anything else. They also like going to smaller towns, or at least they like them just as well as cities.

This completes my report for the year, emphasizing only our major accomplishments. I would urge you to read the Auxiliary page in your Kansas Medical Society JOURNAL to keep informed on what we are doing through the year. And if you wonder who Auxiliary Annie is, you're looking at her.

Again, we wish to thank you for your interest and cooperation in our Auxiliary. Without you we would have no purpose.

Report of the President
Kansas Foundation for Medical Care

I'm sure you are aware that H.R. 1 is law. A portion of this law relates to quality control and medical necessity (peer review) of health services. Physicians alone are given the opportunity to provide this quality supervision until January 1, 1976. If we as physicians are unable or unwilling to provide this supervision by that time, the function will be taken over by HEW and organized at their will.

There is considerable confusion about the national districts, the requirements of quality control, how it will be done and all other specific factors about the mechanics and administration of such a quality control program.

There is a possibility that Kansas will be divided (because of the Greater Kansas City Area) into four different review districts: the eastern part to Missouri; the southern part to Oklahoma; the western part to Colorado; and the northern part to Nebraska. It is my opinion that this would be detrimental to efficient review process and contrary to the principles of peer review being performed locally as adopted by the KMS House of Delegates in Resolution No. 72-37.

One of the purposes of the Kansas Foundation for Medical Care, as given in Article III-B in the Articles of Incorporation, is: "To promote and develop means whereby medical services of high quality can be provided to the general public in accordance with proper medical and ethical standards." Your Foundation has been working to implement this portion during the past year and we will hear a report from the Peer Review Director, Dr. Ed Ryan of Emporia, a little later. The board of directors wants to make the services of the Foundation available to the members of the Kansas Medical Society to accomplish the requirements embodied in HR. 1 if it can be done within the guidelines of the review process adopted by KMS House of Delegates.

There are two basic types of foundations. First is the *comprehensive* type. The purpose of this type is to design and sponsor prepaid health insurance and to provide the peer review on the quality of health care given. The second type is commonly called the *claims review* foundation. The purpose of this foundation is to provide peer review by physicians to all fiscal intermediaries of the area health plans, including the intermediary for Title 18 and 19. In addition, certain educational and administrative activities may be performed. As you can see, the

comprehensive foundation could become an HMO if the members so desired. The claims review foundation could not become an HMO. The Kansas Foundation for Medical Care is a claims review type of foundation, as are most other statewide foundations. The only comprehensive foundations are those in a limited area of a state and cannot speak for or represent the physicians of the whole state. The type of foundation being developed in Wichita is an example of the comprehensive type foundation.

The district peer review committees in some areas have been functioning well and this is appreciated by all fiscal intermediaries of health care plans. Through our foundation, we can give the physicians a mechanism to provide this service to all fiscal intermediaries. We can also make it possible for Kansas physicians to cooperate with the law concerning quality supervision and can keep the peer review of health services given by Kansas physicians under the direction and control of Kansas physicians working through the Kansas Foundation for Medical Care.

Under the law, if Kansas becomes a single PSRO region, the Foundation offers the only means for providing physician-controlled peer review.

We, in the Foundation, have the mechanism established to provide this service.

The Executive Director

Another year is coming to a close—an exciting year—a good year. So many remarkable events occurred that there is no way to recall them all.

This was the year that the Foundation began to move. There are now just short of 900 physician participants, which is fine but short by 1,000 of the number needed.

Under the Foundation, peer review committees are organized. They are meeting. They are ruling on questions from Medicare, from Blue Shield, from Commercial Insurance. Dr. Edward J. Ryan, of Emporia, has done a beautiful job of organizing this.

Dr. Francis T. Collins, president of the Foundation, will tell you a beautiful beginning has been achieved, but a great deal more needs to be done and quickly.

This was the year we first held a mid-winter House of Delegates meeting. On a snowy day, the attendance was good at Lawrence and the meeting was constructive.

This was the year of the expansion of the Medical School. In fact, relations between the School and the profession in the state have never been better—thanks in large part to the beautiful cooperation of Dr. Rieke.

And thanks in large part to Dr. Graham. He has been an exceptional president. His interest in this Society, his hope for the preservation of free enterprise in the practice of medicine, his concern over unity among physicians, his desire to work with all allied health professionals, his keen discernment of political action are phenomenal.

No president ever cared more—about every big and about every little thing. No president has gone so far as has Dr. Graham toward informing the public about the availability and the quality of health care.

Never have we in your Executive Office asked him for direction but he gave it instantly. Never was he too busy to answer a question from anyone. Never has the authority vested in the president been so completely shared with the Executive Committee.

An immediate benefit will accrue to Dr. Taylor when he takes over the presidency because continuity of purpose is assured.

Dr. Taylor is thoroughly acquainted with all Society programs and will continue the sharing of responsibility with the Executive Committee. It has been a great year and next year will be great also—and exciting and frightening.

Next year will tax you to the utmost. Next year more than ever before will require your best thinking, your complete cooperation, a UNITY you have never achieved before. Look!

A few weeks ago, Dr. Graham and I attended an AMA conference at which Gerald Ford spoke. You know he is minority floor leader in the House of Representatives. Mr. Ford said, "In my opinion, there is better than a 50 per cent chance that some form of NATIONAL HEALTH INSURANCE will be enacted by the Congress in 1973 or 1974."

HMOs will have to be faced. There are two bills on this subject in Congress and, still alive, awaiting action next January in our legislature. In Kansas, HMOs would be under the direction of the Commissioner of Insurance and the *quality* of care rendered would be judged by the State Department of Health.

It is very necessary for the Kansas Medical Society to protect not only the profession but the public from harmful legislation on this subject. We must prevent government at all levels from paying a premium for programs which, unless properly operated, could destroy the private practice of medicine.

If you think these are difficult, what will you do about the PSRO? This problem is here. It will not go away. Only with your greatest effort can you guide this properly.

The quality of your practice will be judged either by your peers or by lay person upon your default. You must make this decision soon and—should you prefer peer review by your peers, you must get the program started.

Earlier today, I heard Dr. Collins tell that the Kansas Foundation for Medical Care is ready to move. Peer review at the local level is already func-

tioning. So, with this Society so far organized in this direction already, it seems that a satisfactory structure is in existence to meet the requirements of H.R. 1 and HEW.

If you think these are the only problems, listen to this.

The AMA told us that a District Court ordered the admitting physician to pay his patient's hospital bill. The utilization committee ruled the admission not medically necessary. On learning this, the patient refused to pay and went to court.

As I said, next year will tax you to the utmost. Praise the Lord for the doctors of Kansas. I have told you many times before that the Kansas Medical Society is the greatest in the nation. You would believe me if you could hear, as I do, the secretaries of other societies tell their problems.

You cannot possibly name all the doctors who contributed to the success of this past year. Of course, you name Dr. Graham, your president, and all your elected officers, the commission chairmen, and many committee chairmen and members. I again want to thank the many Topeka doctors who, without exception, immediately took care of legislators when I asked this favor of them. Then, all of you who are here today and the many more who work at their county society projects and, most of all, every Kansas physician for the service he gives to the people of this state.

Part of the success, I think, lies in the devotion of the staff in your office. I honestly believe you have now the best group the Society has ever had. I have had tremendous pleasure and pride in watching the two new young men who have joined us since our last meeting in Salina. Talk to them during this session, get acquainted with them—you too will be impressed. The girls you will meet at the registration desk. They are utterly loyal and dedicated to you. They are a wonderful group to work with.

I must also single out your Legislative Committee and Dr. John Blank, the chairman, for one of the reasons your year was successful. This committee, including a member of the Auxiliary, met almost every week during the session. They examined every bill relating to health and performed a great service in talking to legislators.

The final legislative bulletin on pink paper is in your packet. It will tell you the legislative story. The year was a good one—thanks to Dr. Graham and to hundreds of you. I have enjoyed every minute of it and, if you will, I would like to work another year or two until these great young men you have employed feel more at home.

I pledge to you and to Dr. Taylor the full cooperation of all of us in your office to make this coming year the very best in your long and brilliant history.

The Constitutional Secretary

Phillip A. Godwin, M.D., Constitutional Secretary, presented the following summary of the membership of the Society for 1973.

Dues paid members	1,593
Delinquent members	198
Emeritus members	109
In-service members	3
Leave-of-absence members	29
Personal exemption	10
Retired members	88
Honorary members	3
Total	2,033

This compares with the membership in previous years as follows:

1966	Total membership	1,884
1967	Total membership	1,875
1968	Total membership	1,895
1969	Total membership	1,909
1970	Total membership	1,921
1971	Total membership	1,990
1972	Total membership	2,003

SECOND SESSION

The second session of the House of Delegates was called to order by the Speaker, Clair C. Conard, M.D., at 8:30 a.m. on Wednesday, May 9, 1973 at the Holiday Inn Plaza, Wichita.

Ballots were distributed for the election of officers, Speaker, and Vice Speaker.

The following results of the election were reported:

President-Elect: John N. Blank, Hutchinson

First Vice President: John W. Travis, Topeka

Second Vice President: Emerson D. Yoder, Denton

Constitutional Secretary: Phillip A. Godwin, Lawrence

Treasurer: Chester M. Lessenden, Jr., Topeka

AMA Delegate 1974/75: Clair C. Conard, Dodge City

AMA Alternate Delegate 1974/75: Lew W. Purinton, Wichita

Speaker: Clair C. Conard, Dodge City

Vice Speaker: M. Robert Knapp, Wichita

The caucus of the Council districts announced the selection of the following to serve as Councilors and Alternates from their respective districts:

District 2: John D. Huff, Kansas City, Councilor.

District 11: Warren E. Meyer, Wichita, Councilor; H. Thomas Gray, Wichita, Alternate.

District 14: Wendale E. McAllaster, Great Bend, Councilor; Edward L. Jones, Great Bend, Alternate.

District 15: Evan R. Williams, Dodge City, Councilor; Norvan D. Harris, Liberal, Alternate.

Thomas F. Taylor, M.D., the newly installed President, delivered the following address, after which the House of Delegates adjourned.

"I look upon the past year with the Medical Society as being one of relative quiet and with a great deal of work being done below the surface in multiple areas. Dr. Graham has given unselfishly of his time, energy and effort, and has faced each question with knowledge, with input from many members of the Kansas Medical Society, and has given appropriate, to-the-point answers to many of the problems that have come up, and I think particular recognition should be given to him for the great work that he has done.

"During the coming year, I would propose that conscientious efforts be made to get the Foundation off the ground. I think we have particular problems in this area, both in the area of some misunderstanding among our members in spite of the advertising which has been done pertaining to the Foundation, and in the area that we really don't have much time left to get this thing off the ground and get it functioning. The question of whether the PSRO concept will be fused with the Foundation or not will be raised at some other time and should be brought to the full attention of the House of Delegates, as to whether we should go this route or whether we should allow the Foundation to function independently.

"Our Legislative Committee functioned well during the past year. Although most of the problems which confronted us in the state legislature came only at the last hour of the last day of the legislative session, we did have a problem with the Board of Pharmacy and, perhaps, with the pharmacists throughout the state of Kansas, in that they appear to want to control the physicians through separate licensure with the Board of Pharmacy, and I think this area must be worked on.

"We have had various commissions and committees throughout the structure of Medical Society during the past year, some of which have worked effectively, some of which have not worked at all. I will attempt during the coming year to see that each one of the committees functions and I would appreciate any of you who are willing to serve on a committee or a commission contacting me as soon as possible. If you know of any member in your district who would be willing to work in any particular area, I would appreciate your letting me know. I will propose that the structure of a committee can be changed any time during the year if we see that the committee is not functioning.

"I intend utilizing the Executive Committee and the Executive Staff of the Kansas Medical Society more fully than we have during the past, and intend on making the Executive Committee responsible to the Kansas Medical Society. I wish to continue with the concept of the staff people making contract with the various members of the Medical Society either through the doctors' offices or in the doctors' rooms in the various hospitals throughout the state. If the various medical societies throughout the state would care to invite or would like to have members of the staff or the Executive Committee of the Kansas Medical Society attend their meetings, on a basis of not particularly discussing anything but of just being there to listen to the physicians talk, we would be glad to institute this type of a program.

"Again, I thank you, and I will attempt to do what you people want. This does require active communication on a bilateral basis."

RESOLUTION NO. 73-1

(Combined With No. 73-37)

Kansas Foundation for Medical Care

Whereas, Close communication is necessary to maintain the effectiveness of the Kansas Foundation for Medical Care in its relationship to the Kansas Medical Society; therefore be it

Resolved, That the President of the Kansas Foundation for Medical Care shall be a member of the Executive Committee of the Kansas Medical Society serving *ex officio,* without vote unless he concomitantly serves as a regularly elected member of the committee; and be it further

Resolved, That the By-laws be amended in Section 8.15 by inserting the following at the close of the first sentence: "the president of the Kansas Foundation for Medical Care shall be an ex-officio, non-voting member."

RESOLUTION NO. 73-2

Alternate Delegate to AMA Meeting

Whereas, The large and complex nature of the AMA annual meetings makes it difficult for our delegates to cover all the important sections; and

Whereas, The representation of Kansas is small due to its relative population rank; and

Whereas, Many sections and reference committees are meeting simultaneously; therefore be it

Resolved, That each county and component medical society be encouraged to send a voluntary alternate delegate to work with the Kansas Medical Society official delegates as silent partners at the AMA meeting; and be it further

Resolved, That these silent partners would be attending section meetings and review committee meetings to inform the regular Kansas Medical Society delegates so that they may give a more informed representation; and be it further

Resolved. That the AMA delegate and the alternate delegate and the voluntary delegates from component societies shall caucus at the national meetings and that the AMA delegate be authorized to appoint such additional alternate delegate representatives as may be necessary to adequately represent the Kansas Medical Society and its interests.

RESOLUTION NO. (F-72-26) 73-3

Laboratory Personnel Licensure

WHEREAS, Certification of Laboratories has been established and implemented by many agencies; therefore be it

Resolved, That the Legislative Committee be instructed to follow the concept that state licensure of laboratory personnel is unnecessary.

RESOLUTION NO. (F-72-14) 73-4

Laboratories

WHEREAS, A significant number of laboratory tests are performed in doctors' offices; and

WHEREAS, Quality control methods and proficiency testing of samples of certified concentration are used to monitor the excellence of results in hospital laboratories throughout the country; and

WHEREAS, Such systems are presently available from laboratory specialty societies and reputable manufacturing companies; and

WHEREAS, Laboratory results influence the diagnosis and treatment of patients, whether they are performed in doctors' offices or hospital laboratories; therefore be it

Resolved, That the House of Delegates of the Kansas Medical Society recommends the use of quality control methods and the performance of proficiency testing in the doctor's office laboratories as a means of assuring accuracy of results and good quality of medical care.

RESOLUTION NO. 73-5

Physician's Assistant Program

WHEREAS, There is a federally funded Physician's Assistant Program in the state of Kansas under the direction of the Kansas State Board of Regents; and

WHEREAS, The Commission for Education of the Kansas Medical Society has given in-depth study of this program and issued a detailed report of the status of such a program in Kansas; and

WHEREAS, The current federal funding for the Physician's Assistant Program is only up through September 30, 1973; therefore be it

Resolved, That the Kansas Medical Society encourage the continuation of the Physician's Assistant Program.

RESOLUTION NO. 73-6

Physician's Assistant

WHEREAS, The Physician's Assistant Program at Wichita State University is now under way as of January 22, 1973; and

WHEREAS, The type "A" Physician's Assistant is defined by the National Academy of Sciences as "(an) assistant (who) is capable of approaching the patient, collecting historical and physical data, organizing these data, and presenting them in such a way that the physician can visualize the medical problem and determine appropriate diagnostic or therapeutic steps. He is also capable of assisting the physician by performing diagnostic and therapeutic procedures and coordinating the roles of other, more technical, assistants."; and

WHEREAS, Graduates of the Wichita State University Physician's Assistant Program will be issued a certificate for satisfactory completion of the Physician's Assistant Program; and

WHEREAS, The Commission for Education has issued its report on the current status of physician's assistants in the state of Kansas; therefore be it

Resolved, That a physician's assistant will not be licensed to practice but will provide patient care only under the direction and supervision of a person licensed by the Kansas Board of Healing Arts to practice medicine and surgery; and be it further

Resolved, That a copy of this resolution be sent to the Board of Healing Arts.

RESOLUTION NO. (F-72-7) 73-7

Wage and Price Control

WHEREAS, The federal Wage and Price Control regulations are discriminatory to physicians; and

WHEREAS, 1. Doctors' expenses are increasing, 2. Malpractice insurance has doubled in the past few years, 3. Salaries for employees must increase to compete with nonregulated business, 4. Federal regulations under Medicare and Medicaid increase required paper work to where additional employees are needed, 5. Doctors are stagnated from purchasing new equipment or improving their practice techniques; and

WHEREAS, Increasing productivity may well decrease quality; and

WHEREAS, Doctors in increasing numbers are closing their offices and accepting salaried positions; and

WHEREAS, Doctors may establish new fee schedules only if they leave the state and begin practice elsewhere; and

WHEREAS, All the above is to the disadvantage of the patient; therefore be it

Resolved, That the doctor's fees should keep pace with his cost of practicing and with the cost of living; and be it further

Resolved, That this Society requests the Board of Wage and Price Control to modify the regulations regarding physicians to enable them to stay in practice; and be it further

Resolved, That copies of the letter to the Board of Wage and Price Control and of this resolution also be sent to the President of the United States and to the American Medical Association and all Kansas Congressmen.

RESOLUTION NO. 73-8

New Physicians

Resolved, That the Kansas Medical Society become an active agent in the recruitment and placement of new physicians for Kansas; and be it further

Resolved, That the office of the Executive Director under direction of the officers of the Society develop mechanisms for

A. The contacting of prospective and actual medical students in training in Kansas or who might have an interest in Kansas practice.

B. That contact be maintained as the student proceeds in his professional career in an attempt to assist him in formulating his plans regarding practice type, specialty, and location.

C. That his interests be compiled and recorded in this office.

D. That this office serve as a placement service by forwarding this information to appropriate local medical societies, physicians and communities; and be it further

Resolved, That the Society expand its efforts to support the Auxiliary and other organizations involved in medical career recruitment by contacting schools and colleges directly or through local societies to offer counseling and guidance regarding health professions.

RESOLUTION NO. 73-9

Not adopted. Filed for information.

Medical Economic Seminar

Resolved, That a 1½-day seminar for state and local society officers and interested members be held for the purpose of informing them of items of medical importance outside the scientific aspects of medicine, and that this conference be held in January or February, and that the Society appropriate $2,000 annually to defray the expenses.

RESOLUTION NO. 73-10

New Physicians

WHEREAS, Resolution 72-38 has directed the component society of the area to assist the new physician and his family medically and socially and to acquaint him with health laws, practice requirements, referral opportunities, charging practices, and professional needs; therefore be it

Resolved, That the component society, as early as possible, welcome each new physician to the community, present to the physician the bylaws, explain the society's function and projects, and assist the new physician in understanding the application of the Relative Value Study in the particular medical community; and be it further

Resolved, That the Kansas Medical Society, after being notified by the component society of a new physician, send to that physician the bylaws and state roster, place him or her on the complimentary mailing list (for 12 months) for the KMS JOURNAL and news, advise him of the disability and malpractice insurance available, of the educational programs in the state, and other such information as deemed helpful; and be it further

Resolved, That the Kansas Medical Society explore a continuing educational program for the new physician in office management, collection procedures, office equipment, financial direction, and other business-related activities.

RESOLUTION NO. (F-72-23) 73-11

Graduate Medical Education in Kansas

WHEREAS, Three residency training programs in family practice are now established in Kansas—two in Wichita and one at the University of Kansas Medical Center at Kansas City; and

WHEREAS, Such programs represent important steps toward the production of physicians for Kansas and for the nation; and

WHEREAS, There is a great need to encourage

young physicians to practice in Kansas; therefore be it

Resolved, That the Kansas Medical Society encourages the directors of the three family practice programs, as well as the directors of all graduate medical education programs in Kansas, to include within the residency training some quality affiliated experience which will acquaint the resident physician with the practice opportunities available throughout the State of Kansas; and be it further

Resolved, That the Kansas Medical Society, through its delegates to the American Medical Association, request the Council on Medical Education of the AMA to liberalize its guidelines on all graduate medical education to permit and to encourage quality affiliated experiences within residency training programs away from the parent program.

RESOLUTION NO. (F-72-9) 73-12

Not adopted. Combined with No. 73-13.

RESOLUTION NO. (F-72-10) 73-13

(Combined With No. 73-12)

Continuing Education

WHEREAS, Evidence of continuing education is being required for maintenance of membership in an increasing number of professional organizations; and

WHEREAS, Evidence of continuing education is being required for continued licensure in at least one state and may ultimately be required in Kansas; and

WHEREAS, Documentation of the more formal types of continuing education is difficult unless it is given by a formally accredited organization or institution; and

WHEREAS, The American Medical Association is the nationally recognized accrediting agency; and

WHEREAS, The American Medical Association, because of the excessive load, is able only to accredit national and regional organizations and institutions; and

WHEREAS, The American Medical Association can extend this much needed accreditation to community-based continuing education only through state medical societies which have developed an accrediting procedure that has been approved by its Council on Education; therefore be it

Resolved, That the Kansas Medical Society accept the recommendation of the Kansas Medical Society Commission on Education and transmit a model accrediting protocol to the American Medical Association with a petition for its approval; and be it further

Resolved, That the By-laws be amended to authorize the creation of an accrediting agency.

RESOLUTION NO. 73-14

Not adopted. Filed for information.

Postgraduate Education

WHEREAS, It is general knowledge that continued medical education is a necessity to practice good medicine regardless of the specialty; and

WHEREAS, The Commission for Education of the Kansas Medical Society has studied these needs and has recommended that certain postgraduate requirements be met as a requisite to membership in the Kansas Medical Society; therefore be it

Resolved, That the postgraduate study requirements as adopted by the Commission for Education of the Kansas Medical Society be adopted by the Kansas Medical Society as a requirement for continued membership in the Kansas Medical Society.

A. Requirements—150 hours of postgraduate medical education shall be completed by each member every three years as a requisite in continuing membership in the Kansas Medical Society.

1. Accredited education

a. A minimum of 50 hours must be in accredited postgraduate education, such as specialty scientific meetings, medical school sponsored programs, courses approved by AAFP, etc.

b. There will be no limit on credit given for this category, *i.e.,* all 150 hours could be from accredited courses

c. Courses must be approved by the permanent committee appointed by the Commission for Education

d. Credit shall be given on an hour for hour basis.

2. Non-accredited education

a. 100 hours may be non-accredited education such as: (1) Journal reading, (2) Audio digests, (3) Hospital staff meetings, (4) Informal teaching, (5) Publication of papers in recognized professional journals (10 hours credit each), (6) Scientific meetings of state medical society, AMA, and specialty groups.

b. Credit for this category shall be approved by the permanent supervising committee.

B. Administration

1. This program will be under the over-all supervision of the permanent committee

2. Appropriate clerical assistance will be pro-

vided in the KMS office

3. The program should be arranged so that one third of the members would meet the requirement each year

4. The requirement for new members shall begin on January 1 of the year following admission to the KMS

5. Requirements shall be on a calendar year basis

6. The individual members shall be responsible for reporting their postgraduate education

7. Appropriate forms shall be furnished by the KMS on a yearly basis

8. Members not meeting requirements shall be notified six months prior to the end of their three-year period

9. Appeals may be made to the KMS Commission for Education.

C. Exemptions

1. Honorary members of county medical societies

2. Members retired from active practice

3. Members in approved residency training programs

4. Special exemptions may be made for long periods of illness

5. Other special exemptions may be granted by the special committee upon application by individual members.

RESOLUTION NO. 73-15

Not adopted. Filed for information.

Continuing Education

WHEREAS, The Kansas Medical Society has been asked by the American Medical Association to evaluate continuing medical education programs in this state, therefore be it

Resolved, That the following outline is approved by the Society.

PROPOSED KANSAS MEDICAL SOCIETY STANDARDS FOR ACCREDITATION FOR CONTINUING MEDICAL EDUCATION ACTIVITIES IN MEDICAL INSTITUTIONS AND ORGANIZATIONS

I. Institutional Commitment

The following areas are important aspects of commitment to improving patient care through continuing medical education.

a) Explicit support of continuing medical education by the governing body, organized medical staff and administration.

b) Provision of facilities for continuing medical education of the attending staff as evidence of such support.

c) A continuing medical education committee, having cross-membership with patient-care review committees and including a wide range of subspecialty and departmental representation.

d) A responsible Director of Continuing Education or Continuing Education Committee Chairman with supporting staff, including availability and use of expert knowledge of educational methods, wherever possible.

e) Coordination and cooperation with other education programs in the area, in sharing resources, and *evidence of efforts to meet the educational needs of physicians in the community.*

II. Program Development

a) *The Assessment of Needs* as developed through quality of patient care review mechanisms.

b) *Clearly Defined Objectives* for each educational activity based on the assessment of needs.

c) *Planned Learning Experiences,* designed to bring about these specific objectives, selecting the most effective educational methods for the particular need, whether knowledge, skills, attitudes, or performance-behaviors are to be changed.

d) *Evaluation* of each individual educational activity, and of the entire continuing education program of the medical organization, in terms of impact on the quality of patient care, through review procedures similar to those followed in assessing needs.

INTRODUCTION

The purpose of this publication is to help the medical staffs of medical institutions and organizations develop effective continuing medical education. The concept of a "Lifetime of Learning" has become an accepted fact for the practicing physician. The American Medical Association has undertaken a program of certification for the completion of minimum requirements of continuing medical education in an effort to implement this concept. In spite of a vast array of courses currently available, it is apparent that new approaches will be required to meet the demand. The KMS has recommended that each medical institution and organization establish an education committee and that the effectiveness of the educational effort be evaluated by a review of the quality of medical care to detect changes in medical staff performance.

The Kansas Medical Society will survey and accredit continuing medical education activities in medical institutions and organizations. Arrangements are being made with the American Medical Association for reciprocity of such accreditation procedures to avoid duplication. For medical institutions and organizations seeking accreditation of their continuing medical education activities, the principles described in this document should be considered generally applicable and as a general statement of criteria to be used by the survey teams in evaluating the quality of the educational effort. These are flexible and will be reviewed periodically.

OBJECTIVES

The ultimate aim of continuing medical education is improvement of the health and well-being of the individual patient and of the public. This may be accomplished by bringing about:

1. Changes in the attitudes of physicians.
2. Correction of outdated knowledge.
3. Introduction of new knowledge.
4. Mastery of specific skills and techniques.
5. Improvement in the performance of physicians.

It is assumed that the accomplishment of these measurable objectives will alter the physician-learner's habits in a favorable direction which can be evaluated by a systematic assessment of the quality of medical care provided within medical institutions and organizations.

Each medical staff should develop empiric evidence of educational needs through internal self-evaluation of the quality of medical care. This will allow a clear statement of the specific objectives of the educational program and permit evaluation of its effectiveness. Imaginative and innovative techniques to accomplish these objectives should be encouraged.

BASIC PRINCIPLES FOR CONTINUING EDUCATION ACTIVITIES

1. *Administration:* There should be administration of continuing education by a responsible person having the respect and support of the medical staff and hospital administration; the goal should be a program in the highest interest of the public and the medical profession. There must be continuity of administration, advanced planning, evaluation, and feedback from physician-learners and teachers. This cannot be accomplished by the appointment or election of the Chairman of the Educational Committee on a yearly basis as is commonly done by the medical staffs of medical institutions and organizations. Larger institutions should employ a physician, either full or part-time, as director of medical education or director of continuing education because the burdens of this position can become too great to be carried by a volunteer member of the medical staff. Cooperative arrangements could be made by smaller institutions on a regional basis to share such leadership.

The Chairman of the Continuing Medical Education Committee, Director of Medical Education, or Director of Continuing Education, should be charged with the following responsibilities:

a. Determine the specific needs of the medical staff as developed by systematic assessment of the quality of medical care conducted by the tissue, audit, utilization, and records committee or by a special "Educational Audit" committee.

b. Provide clear statements of the objectives of specific educational activities.

c. Plan activities well in advance.

d. Encourage involvement of all members of the medical staff throughout the educational process by enlisting their help in the determination of needs, the development of objectives, implementation, teaching, learning, and evaluation.

e. Insure that study areas, audio-visual aids, and self-instructional aids are available.

f. Publicize the continuing medical education effort to the medical staff and to the general public.

g. Supervise enrollment records.

h. Coordinate educational activities for physicians with programs for paramedical personnel.

i. Coordinate educational activities with other programs of continuing medical education.

j. Develop strong working relationships with continuing medical education departments of nearby medical schools.

k. Plan for evaluation of the effectiveness of the program to see if the objectives are being accomplished.

1. Encourage the provision of adequate library facilities and services.

2. *Budget:* The budget should be adequate for the educational activities and for their continued improvement. Sole dependence upon tuition fees may restrict the quality, breadth, and depth of the educational program. Support for these activities may be sought from medical staff dues, hospital general funds, medical schools, federal funds, existing charitable foundations, or by the development of new hospital research and education foundations.

3. *Teaching Staff:* The teaching staff should consist of the physician members of the hospital medical staff dedicated to the development of carefully planned educational activities. Frequently, it will be

desirable to enlist teachers from other hospitals and medical schools in the region, although the main body of teaching must come from within the community. There must be an adequate number of teachers capable of explaining the basic mechanisms of disease and their clinical applications in prevention, diagnosis, and treatment. Not all physicians are good teachers, but all teachers can be improved through helpful criticism of their efforts by physician-learners. Those medical institutions and organizations with intern and residency programs should have a nucleus of a faculty that can be expanded to meet the demands of a solid continuing medical education program. In order that each medical institution and organization may obtain necessary academic backup for their programs of continuing education, it is suggested that cooperation with medical schools be established. It is hoped that it will be possible for medical schools to develop approaches which will significantly aid medical institutions and organizations that wish to become intramural teaching centers.

4. *Curriculum:* The curriculum of any continuing medical education activity: (a) Should be designed to achieve specific objectives, (b) Should be well-planned in advance, and (c) Should include appropriate methods of evaluation.

Thoughtful planning requires that the content of the educational activities be based upon the demonstrated needs of the learners and relevant to their work within the institution. The means of establishing needs may vary, but must be more than a popularity poll. Newer knowledge of the basic mechanisms of disease and treatment should be an integral part of the program along with more practical information. The curriculum should be coordinated with other institutions to avoid duplication and encourage adequate coverage.

5. *Facilities:* There should be facilities available that encourage participative methods of education. Though lectures are means whereby physicians obtain information, it is felt that this method of education alone cannot provide an adequate continuing education program in the context of modern education. The facilities when appropriate to the content of the program, should include the availability of patients and their case records and other necessary records such as roentgenograms, electrocardiograms, surgical pathology tissues or reports, laboratories, library, adequate conference rooms, and audio-visual aids.

6. *Educational Methods:* The educational methods should include more than a series of lectures or panel discussions in which the physicians are primarily passive recipients. Methods requiring active participation include live clinics and bedside rounds, seminars, open question periods, laboratory work, and the study of patients under supervision.

There is ample evidence in the undergraduate and graduate phases of medical education that overemphasis on purely didactic methods resulting in less learning than one requiring active participation.

It should be noted that any potentially active methods of education, such as ward rounds, can become a purely passive exercise if a group is too large; *e.g.,* bedside groups of six to eight physicians would be likely to encourage participation of each, while bedside groups of more than ten might easily consist of "standing lectures."

Strictly as aids to education rather than as the sole method, the use of slides, motion pictures, and television is encouraged. In the case of home study courses, the use of audio-visual kits may be of value. Such tools as television and videotape have valuable and even unique potentialities when their usefulness is appreciated as means rather than as ends.

When lectures are utilized, it is helpful also to conduct group discussions and question-and-answer sessions as follow-through techniques. Similarly, though appropriate audio-visual aids are of assistance, they should be simply a part of, and integrated into, a planned educational activity. Catalogues containing lists of suitable motion pictures and their sources are available from the Director, Television and Motion Picture Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

The patients of physicians on the attending staff of medical institutions and organizations can be utilized in a program of continuing medical education if other facilities and a teaching staff are provided, perhaps in part by cooperative arrangements between the regional hospitals and medical schools. Such education, if carefully planned and enthusiastically put into effect by the attending staff of the medical institutions and organizations, would be more truly continuous education and thus more valuable than is likely to be the effect of sporadic study in formal courses. Community hospital-medical schools cooperative efforts are desirable to meet the overall needs of the profession.

7. *Methods of Evaluation:* Methods of evaluating the effectiveness of continuing education activities should be developed. Without an initial statement of specific objectives for each activity, it is difficult, if not impossible, to ascertain in any meaningful way whether such objectives have been fulfilled. Yet, evaluation of each program and its students' achievements, both immediate and long-range, is essential.

Experiments directed toward better ways of accomplishing such evaluation are encouraged. Since the goal of all these efforts is better patient care, each medical institution and organization should try

to ascertain whether the educational program has in fact improved the quality of medical care. The systematic evaluation of the quality of medical care has excellent educational possibilities when conducted as "educational audit."

8. *Physician's Reward:* Each physician's reward for participation in continuing medical education should be his improved ability to care for his patients and the stimulation of his own spirit of intellectual adventure.

Any certificate granted at the completion of a continuing education program or series of programs should not be, nor resemble, a diploma attesting to special skill, nor be reasonably susceptible to such interpretation. Continuing medical education is not intended to provide an educational experience adequate for beginning the practice of a specialty or subspecialty—that is the concern of graduate medical education, i.e., residency and fellowship training. Therefore, it would be inappropriate for any document attesting to contributing education study to be subject to misinterpretation.

The American Medical Association has established certification for physicians who have completed certain minimum requirements of continuing medical education. It is hoped that many medical institutions and organizations in Kansas will develop activities that may be accredited so that their medical staff members can obtain much of their education in their own hospital.

SUMMARY

These guiding principles were developed to:

1. Assist medical staffs of medical institutions and organizations in the production of continuing medical education activities.
2. Improve the educational worth and relevance of continuing medical education activities.
3. Outline mechanisms for evaluating the effectiveness of continuing medical education.
4. Provide a basis for the accreditation of continuing medical education activities in medical institutions and organizations.
5. Outline a plan for the Kansas Medical Society hospital medical survey teams to use in examining the approach of each medical institution and organization medical staff to continuing medical education.

The basic principles of continuing medical education are the same as are those of undergraduate or graduate medical education. An effective program requires leadership, careful planning, suitable facilities, and competent teachers, who use dynamic methods of education that enlist the participation of the student. Appropriate means of evaluation should be devised to permit some measure of the program's effectiveness.

RESOLUTION NO. 73-16

Woman's Auxiliary

Resolved, That a vote of appreciation to Auxiliary for their part in the Health Education Bus and an exhortation to continue their excellent effort in the future be given.

RESOLUTION NO. 73-17

House of Delegates

Resolved, That the Governor or a member of the legislature be asked to attend the first House of Delegates meeting and to deliver appropriate comments.

RESOLUTION NO. (F-72-2) 73-18

Society Membership

WHEREAS, Two physicians practicing within the jurisdiction of the Flint Hills District Component Society have refused to pay their AMA dues but have repeatedly attempted to retain their membership in the Kansas Medical Society; therefore be it

Resolved, That these two physicians be permitted to rejoin the Society by paying their delinquent Kansas Medical Society dues but that they be forgiven their delinquent AMA dues.

RESOLUTION NO. 73-19

Specialty Societies

WHEREAS, In the Bylaws of the Kansas Medical Society 5.22, Organized Specialties, 14 specialty societies plus Dermatology as a planned 15th such society are entitled to one delegate and one alternate each; and

WHEREAS, In the past, such societies' interests have been inadequately and sporadically represented; therefore be it

Resolved, That the Kansas Medical Society requests each such specialty society to elect a delegate and alternate and to expect them to be present at each meeting of the House of Delegates and at such Reference Committee meetings as they deem appropriate; and be it further

Resolved, That the Kansas Medical Society requests the specialty societies to channel such actions

through the Executive Office of the Kansas Medical Society for purposes of information and endorsement; and be it further

Resolved, That where actions of the Kansas Medical Society involve concerns of a specialty society, consultation with such society be sought prior to state society action; and be it further

Resolved, That each specialty society be requested to submit an annual report concerning their society activities which are germane to the House of Delegates to be printed in the program issue of the JOURNAL.

RESOLUTION NO. 73-20

Roster Listings

Resolved, That the Roster be amended to include board certification, specialty training, and specialty organization other than board certification attesting to clinical competence in accordance with guidelines adopted by the Kansas Medical Society; and be it further

Resolved, That the information on each physician be compiled by the component society in accordance with these guidelines.

RESOLUTION NO. (F-72-5) 73-21

Rubella and Measles Project

WHEREAS, The National Center for Voluntary Action, sponsored by HEW and the National Communicable Disease Control Center, proposes to establish in every state a corps of volunteers to encourage parents to have their children immunized against rubella and measles; and

WHEREAS, A representative came first to the Kansas Medical Society for endorsement before proceeding further in Kansas; therefore be it

Resolved, That the Kansas Medical Society endorse this project and recommend that the county chairman contact the county medical society for advice on how the project should operate locally.

RESOLUTION NO. (F-72-13) 73-22

Venereal Disease

WHEREAS, It is acknowledged that the spread of venereal disease has accelerated; and

WHEREAS, City and county health departments, because of burdensome manpower-case load ratios, cannot solely be responsible for the control of venereal disease; and

WHEREAS, The most accessible and often the first medical contact made by individuals with apparent venereal disorders is the outpatient clinic or emergency room; therefore be it

Resolved, That acute or overt venereal disease is considered to be of an epidemic nature and that all barriers to treatment in these facilities be discouraged.

RESOLUTION NO. 73-23

Nursing Homes

WHEREAS, Mr. William Newman replaces Mr. Ernest Kieswetter in the State Department of Social Welfare under the direction of Dr. Robert Harder; and

WHEREAS, Mr. A. W. Schnellbacher is in charge of nursing homes under Mr. Newman; and

WHEREAS, The Welfare Department wants to send a team of one nurse and one social worker to visit all welfare and Medicare clients in nursing homes in any category and review records to determine whether or not such clients are properly classified as to skilled, intermediate I, intermediate II, or boarding care; and

WHEREAS, Welfare further wants each component medical society to review the reports with this team by designating members of that component society; and

WHEREAS, Mr. Newman and Mr. Schnellbacher want to visit with each component society to explain their visits; therefore be it

Resolved, That the Kansas Medical Society endorses this program and urges the cooperation of component societies; and be it further

Resolved, That no change in category be made without approval of the reviewing physicians.

RESOLUTION NO. (F-72-25) 73-24

Emergency Medicine

WHEREAS, All physicians have a need to receive training in certain emergency life-saving procedures; and

WHEREAS, All physicians would benefit from well planned educational programs in emergency care; and

WHEREAS, There is a dramatic upsurge in interest in the field of emergency medicine by medical students and young house staff; and

WHEREAS, Numerous physicians are presently limiting their practice to emergency medicine; and

WHEREAS, The American Medical Association itself has recognized the need for special attention to

this subject by establishing the Commission on Emergency Medical Services, the Committee on Community Emergency Medical Services, and the Task Force on Hospital Emergency Department Services; and

WHEREAS, Efforts to provide members of the AMA with educational programs in emergency medicine have in the past been necessarily a combined effort of several AMA sections; and

WHEREAS, The annual meeting of the AMA would provide an ideal time to reach the greatest number of physicians; therefore be it

Resolved, That a Section on Emergency Medicine be established by the AMA for the purpose of coordinating educational programs for all practicing physicians.

RESOLUTION NO. 73-25

Not adopted.

RESOLUTION NO. 73-26

(Combined With No. 73-27)

Medical Information Reports

Resolved, That the Kansas Medical Society modify its policy relative to supplying medical information reports to third parties to read as follows: "With increasing number of payments for medical care by third parties, increased time is required by physicians in preparing reports. The Kansas Medical Society establishes a policy that the preparation of a single brief report on a well recognized form, such as the form adopted by the Health Insurance Council or Kansas Blue Shield, is a service to the patient and *may* be completed by the physician within the charge made for the procedure or service involved, *or may be provided at an additional charge to the patient.* Wherever reports on other specified forms, not in general use, or reports of extended length are required, this is considered by the Kansas Medical Society to be for the convenience of the third party and the physician may make an additional charge for this extra service. Requests for additional medical evidence by third party on behalf of the first party need not be honored by the attending physician unless accompanied by a sight draft, voucher, or request for submission of a statement for their usual and customary fee for service; and be it further

Resolved, That a copy of this resolution be sent to the American Medical Association and the Kansas delegates be instructed to press for adoption of a similar resolution by the American Medical Association.

RESOLUTION NO. 73-27

Not adopted. Combined with No. 73-26.

RESOLUTION NO. (F-72-8) 73-28

Workman's Compensation

WHEREAS, Kansas law requires the employer to provide medical care to injured workmen; and

WHEREAS, Some insurance companies are discriminatory through their practice of selecting specific physicians for use in Workman's Compensation cases; therefore be it

Resolved, That the larger component societies prepare a list of physicians who are willing to perform care for injured workmen and submit these to the principal employers in their area; and be it further

Resolved, That this Society inform the major insurance companies writing Workman's Compensation protection that lists of qualified physicians who will accept Workman's Compensation cases are available from the office of the component society in the area, and that it is the position of this Society that, wherever practical, the injured workman should select the physician of his choice.

RESOLUTION NO. (F-72-15) 73-29

(Combined With No. 73-31)

Kansas Blue Cross-Blue Shield Underwriting Responsibilities

WHEREAS, Kansas Blue Shield (formerly Kansas Physicians Service) was organized, chartered, and established for the still valid primary and specific purpose to underwrite on behalf of subscribers the charges made for services furnished personally by or under the direct supervision of participating physicians; and

WHEREAS, Kansas Blue Cross (formerly Kansas Hospital Service Corporation) was organized, chartered, and established for the still valid primary and specific purpose of underwriting on behalf of subscribers the costs of non-physician services furnished by member hospitals as defined by the Plan; and

WHEREAS, Third-party recognition of this important distinction between the personal services of physicians to individual patients—no matter where they are performed or through what agency they are billed for—and non-physician services furnished by institutions provide strong and essential support for continued professional independence and integrity of the medical profession in Kansas; and

WHEREAS, The distinct identification of each and

every service performed by physicians for subscribers is essential to meaningful peer review of the quality and utilization of services rendered both in and out of hospitals and such identification is required under Blue Shield but not under Blue Cross; therefore be it

Resolved, That the Kansas Medical Society strongly urge the Boards of Directors of Kansas Blue Shield and Kansas Blue Cross to underwrite in Blue Shield contracts and pay for from Blue Shield funds all physician services which are capable of identification, including the "professional component" of those services performed by physicians in a hospital setting which might be billed for by the hospital on behalf of a physician under a salary or contract arrangement; and be it further

Resolved, That such payment by Blue Shield for specifically identified services to subscribers by physicians who choose to bill through hospitals should be subject to established rules under the "prevailing charge" program as they are presently applied to physicians who bill independently for professional services rendered in hospitals; and be it further

Resolved, That Blue Shield should underwrite the professional component of contract practice arrangement (*e.g.,* HMOs, etc.) ; and be it further

Resolved, That the Kansas Medical Society strongly supports the continuing efforts of Kansas Blue Cross in cooperation with the Kansas Hospital Association to effect improvements in the definition, analysis, and reimbursement of non-physician hospital costs; and be it further

Resolved, That it is the position of the Kansas Medical Society that all statements by institutions, including hospitals, for services which embrace or include professional services rendered by physicians shall identify by name the physician, or physicians, responsible for that service.

RESOLUTION NO. (F-72-27) 73-30

Reimbursement of Participating and Non-Participating Physicians

WHEREAS, The patient pays a standardized premium for health insurance for specific services covered; and

WHEREAS, Free choice of physician is an accepted right and privilege of patients; and

WHEREAS, Blue Shield has established a range maximum fee for service on a usual and customary basis; and

WHEREAS, Blue Shield discriminates between payment to Kansas participating and non-participating physicians, paying up to range maximum for participating physicians' services, but only the statewide average for non-participating physicians' services regardless of location, special training, or other circumstances; and

WHEREAS, Blue Shield discriminates between non-participating physicians and out-of-state physicians, paying up to range maximum to out-of-state physicians for covered services, but only state-wide average for non-participating physicians; and

WHEREAS, Blue Shield policies cause patients to be billed for fee differences above the allowed averages on charges by non-participating physicians, thus raising the cost of medical fee coverage to those patients; and

WHEREAS, Blue Shield further discriminates against non-participating physicians by intimating to these same patients that their non-participating physician is overcharging; and

WHEREAS, This discriminatory policy is not uniformly applied in that there are several large subscriber groups in Kansas where no payment differential is made between participating and non-participating physicians; therefore be it

Resolved, That the Kansas Medical Society condemn the Blue Shield practice of discrimination against physicians and their fees because of their participation status; and be it further

Resolved, That the Kansas Medical Society encourage the Kansas Insurance Commission to investigate and attempt to clarify this discriminatory practice in the field of health insurance that adversely affects the subscriber and his ability to provide for his health care needs and preserve his freedom of choice.

RESOLUTION NO. (F-72-16) 73-31

Combined with No. 73-29.

RESOLUTION NO. 73-32

Malpractice

WHEREAS, A resolution presented to the House of Delegates of the Kansas Medical Society by the Committee on Malpractice pertaining to the objectives of the Malpractice Committee for 1972 was adopted and passed by the House of Delegates on May 7, 1972; and

WHEREAS, The Malpractice Committee is now prepared to embark upon an in-depth study of the feasibility, need, and implementation of a statewide group professional liability insurance program; therefore be it

Resolved, That the Kansas Medical Society ap-

prove the intent and purpose of the feasibility, need, and implementation of a statewide group professional liability insurance program study, and that the Kansas Medical Society budget funds not to exceed $1,500 to be used in this study, but only on the approval of the president of the Medical Society, chairman of the Commission for Socio-Economics, and majority approval of the Malpractice Committee at such times as funds might be necessary to conduct the study; and be it further

Resolved, That the Malpractice Committee expedite and cooperate fully with the Study Committee of the Legislative Coordinating Council of the Kansas state legislature in as detailed a study as possible of the malpractice situation in Kansas as can be permitted in the interim.

RESOLUTION NO. 73-33

Kansas Dermatological Society

WHEREAS, The Dermatologists of Kansas wish to be recognized as a component organized specialty society of the Kansas Medical Society; therefore be it

Resolved, That the By-laws be amended to add section 4.58, 15, "Kansas Dermatological Society."

RESOLUTION NO. 73-34

Nurse Anesthetists

WHEREAS, Non-physician anesthetists, though valuable members of the health care team are not licensed to practice medicine in the state of Kansas; and

WHEREAS, The physician is the individual in the anesthesia health care team bearing the ultimate and full responsibility for the proper and safe administration of anesthetics on behalf of the patient's well-being; and

WHEREAS, The administration of an anesthetic constitutes the practice of medicine; and

WHEREAS, The payment for services to non-physician anesthetists is not subject to peer review; therefore be it

Resolved, That the bill for services rendered by a non-physician anesthetist, either for an individual service or as a regular employee, should be submitted by a person licensed by the Board of Healing Arts to practice medicine and surgery, and that such payment should be made on the basis of the usual, customary, and reasonable charges concept subject to peer review; and be it further

Resolved, That the Kansas Medical Society membership be encouraged individually and collectively to support this resolution by all available means including, but not limited to, a formal and official presentation to the Kansas state legislature.

RESOLUTION NO. 73-35

Not adopted.

RESOLUTION NO. 73-36

Not adopted.

RESOLUTION NO. 73-37

Combined with No. 73-1.

RESOLUTION NO. 73-38

Delegates on AMA Councils

WHEREAS, Delegates to the American Medical Association House of Delegates who represent state societies are selected by their representative states because of the special confidence physicians of the area have in the delegate; and

WHEREAS, By reason of being a delegate he has more complete knowledge of the operation of the American Medical Association and its policies than have other physicians in the state; and

WHEREAS, He has greater opportunity to interpret the AMA to physicians in his state than has any other doctor; therefore be it

Resolved, That in order to provide each state with minimum participation in the AMA activities and give maximum opportunity for understanding AMA programs at least one delegate from every state be placed on a council or committee of the American Medical Association.

RESOLUTION NO. 73-39

Legislative Committee Chairman

WHEREAS, The Legislative Committee of this Society is becoming increasingly active; and

WHEREAS, It is essential that the chairman of this committee truly represents the Society; therefore be it

Resolved, That the chairman of the Legislative Committee be annually appointed by the president; and be it further

Resolved, That the legislative chairman may serve as many annual terms as he is appointed to serve by the presidents; and be it further

Resolved, That the legislative chairman annually give a brief report to the first session of the House of Delegates.

RESOLUTION NO. 73-40

Nominating Committee

WHEREAS, According to the present language the majority of the Nominating Committee could be named from a single component society; therefore be it

Resolved, That Section 6.6 of the By-Laws be amended by deleting the first sentence and inserting the following:

The Council shall annually at the conclusion of the annual session select three (3) physicians who are members of this Society, each representing a different Council district other than the districts of the two (2) recent living past presidents, to comprise the Nominating Committee.

RESOLUTION NO. 73-41

Economic Review of Professional Charges

WHEREAS, The citizens of Kansas have the right to expect high quality medical care based on sound economic principles; and

WHEREAS, Excellence of medical and surgical care must begin with accurate diagnosis and reasoned consideration of the modes of therapy before instituting therapy, making these processes the foundation for all medical charges. Since the major components of professional charges should relate to (1) M.D. and (2) Time; and

WHEREAS, The Kansas Medical Society continues to be interested in new and innovative systems of distribution of medical care and is always interested in the equitable distribution of the medical care dollar; therefore be it

Resolved, That the president appoint a committee to study the economic relationship of medical professional fees and other medical costs one to another in the state of Kansas.

RESOLUTION NO. 73-42

Cooperation With Other Medical Societies

WHEREAS, The Kansas Medical Society conducted a joint hospitality suite with the medical societies of Nebraska and Oklahoma at the mid-winter AMA meeting in Cincinnati last year; and

WHEREAS, This venture proved successful and has the potential for far-reaching influence within the AMA, especially on policy matters relating to socioeconomics; therefore be it

Resolved, That the Kansas Medical Society continue to conduct the joint hospitality suite with the medical societies of Nebraska and Oklahoma and with other neighboring states as may be included; and be it further

Resolved, That the delegates of these states meet together at least once during each AMA meeting to discuss common goals.

RESOLUTION NO. 73-43

Not adopted.

RESOLUTION NO. 73-44

Peer Review

WHEREAS, PSRO may divide the state of Kansas into separate organizations crossing state boundaries; and

WHEREAS, Our physicians are licensed to practice in the state of Kansas and reside in the state of Kansas with few exceptions; and

WHEREAS, Kansas has already organized (for the state of Kansas) a mechanism which should meet the requirements of HR-1 for peer review; therefore be it

Resolved, That any review process, such as Foundation Peer Review, of physicians located within the boundaries of Kansas should be done by an organization contained within the state of Kansas and directed by the physicians of Kansas; and be it further

Resolved, That a copy of this resolution be sent to the AMA Ad Hoc Advisory Committee on PSRO's; William Bauer, M.D.; Department of HEW; and to the Senators and Congressmen of Kansas.

RESOLUTION NO. 73-45

Emergency Medical Care Training Program

WHEREAS, To upgrade the quality of the emergency medical services within the state of Kansas, a comprehensive training program in emergency care has been in progress for the last two years and seven months at the University of Kansas Medical Center; and

WHEREAS, This training has been made possible by a matching fund grant from the U. S. Department of Transportation which will expire in June 1974; and

WHEREAS, The funds were administered through the Kansas Highway Safety Coordinating Office as part of the response to the Federal Highway Safety Act; and

WHEREAS, The overall responsibility for emergency medical services was assigned to the Director of the Kansas Department of Health who in turn con-

tracted with the University of Kansas Medical Center to design, operate, implement and carry out the program; and

WHEREAS, Police officers, fire rescue personnel and ambulance personnel, both paid and volunteer, full and part time, have been attending some 60 classes held at the Medical Center, and 58 classes held at 38 various locations throughout the state from October 1970, totalling 38 per cent of the 105 counties; and

WHEREAS, It is felt that this program has been a major input in improving emergency care throughout the state and that Kansans and visitors to the state will now receive more comprehensive emergency care than ever before, and while the task is not yet completed some 2,300 EMS personnel have already received the training; and

WHEREAS, An example of the quality of the KUMC training program is demonstrated in the adoption of a model ambulance ordinance in Kansas City, Kansas, in which the Wyandotte County Medical Society was named as the certifying agency for ambulance attendants and the Medical Society uses as one of their bases for certification successful completion of the training program at KUMC; therefore be it

Resolved, That the Kansas Medical Society encourage continuation of this vital EMS training program by the Kansas University School of Medicine; and be it further

Resolved, That the Kansas Highway Safety Coordinating Office, the Kansas Department of Health, the Governor's Commission on Emergency Health Services, and the state legislature be requested by the Kansas Medical Society to provide funds to support this training program rather than initiate a new and separate program; and be it further

Resolved, That the Kansas Medical Society encourage local groups to work for local enactment of model ambulance ordinances to assure improvement of this facet of medical care.

RESOLUTION NO. 73-46

FDA Evaluation of Efficacy

WHEREAS, A new federal administrative fiat now mandates that the U. S. Food and Drug Administration re-evaluate not only the safety but also the efficacy of all drugs and medicinals now used in medical and surgical practice; and

WHEREAS, The U. S. Food and Drug Administration by this administrative edict will affect profoundly the means available to physicians to practice medicine and surgery in all specialties; and

WHEREAS, All drugs could eventually be so evaluated by similar panels of academically rather than clinically practice-oriented physicians; therefore be it

Resolved, That the House of Delegates of the Kansas Medical Society go on record requesting the U. S. Food and Drug Administration and its various divisions to evaluate all drugs by well-balanced panels of equally highly-qualified, practicing physicians as well as academically and research-oriented physicians; and be it further

Resolved, That this House direct Kansas delegates to the American Medical Association to seek the support of the American Medical Association in a concerted effort to prevail upon the FDA to use a well balanced panel consisting of practicing physicians and academic research-oriented physicians in its evaluation of all drugs and biologicals as to their efficacy and safety.

RESOLUTION NO. 73-47

Joint Practice Committee

Resolved, That the membership of the Joint Practice Committee will consist of six (6) members from each sponsoring organization and be selected as follows: two for one-year terms; two for two-year terms; two for three-year terms; and thereafter two selected for three-year terms.

RESOLUTION NO. 73-48

Chiropractic

WHEREAS, Chiropractors are licensed to practice chiropractic in the state of Kansas; and

WHEREAS, As long as they are legally empowered by the Kansas Healing Arts Act to practice those procedures (x-ray and manipulation) as listed in the Act; and

WHEREAS, We cannot effectively argue against the receipt of welfare and insurance benefits to chiropractors for procedures that they are indeed licensed to perform under the Healing Arts Act; and

WHEREAS, Chiropractors will continue to flourish and expand with these revenues; and

WHEREAS, Chiropractors cannot be controlled under the current Healing Arts Act; therefore be it

Resolved, That the cult of chiropractic be recognized by the public at large as the quackery that it truly represents; and be it further

Resolved, That our legislators be informed by the Kansas Medical Society of this position.

RESOLUTION NO. 73-49

Thanks to Sedgwick County

Resolved, That the official record of this august body show that the Kansas Medical Society commends the Medical Society of Sedgwick County for a most excellent, cordial, and entertaining annual meeting 1973 in Wichita; and be it further

Resolved, That the same record show that the Shawnee County Medical Society welcomes with pleasure and honor the 1974 annual meeting of the Kansas Medical Society.

RESOLUTION NO. 73-50

Specialty Societies

WHEREAS, Advances in medicine have made necessary the creation of an increasing number of specialty societies in this state, a development which the organizers of the Kansas Medical Society could not have foreseen; and

WHEREAS, The creation of these societies has led to fragmentation of interest among physicians, with specialty societies going pretty much their own way, most of them holding their annual meetings independently and at different times from the Kansas Medical Society; and

WHEREAS, Physicians, especially primary physicians such as family physicians, internists, and pediatricians are deprived the benefit of the scientific programs of these societies; and

WHEREAS, The separation of specialty society meetings from the annual meeting of the Kansas Medical Society produces a form of competition where each Kansas physician must decide each year whether to attend the annual meeting of the Kansas Medical Society or his specialty society or both; therefore be it

Resolved, That an active program be instituted of encouraging Kansas specialty societies to meet at the same time and place as the annual meeting of the Kansas Medical Society (or immediately before or after it); and be it further

Resolved, That a committee be created to carry on this program.

Council Meeting

Report of Meeting Held May 9, 1973

A meeting of the Council was held at 12:30 p.m., immediately after the conclusion of the House of Delegates on Wednesday, May 9, 1973 at the Holiday Inn Plaza, Wichita. Dr. Thomas F. Taylor, President, called the Council to order.

Present were Dr. Taylor; Drs. John N. Blank, Thomas P. Butcher, Francis T. Collins, Clair C. Conard, Kenneth L. Graham, Herman W. Hiesterman, M. Robert Knapp, Chester M. Lessenden, Jr., John C. Mitchell, and Emerson D. Yoder. The following Councilors were present: Drs. Wayne O. Wallace, District 1; John D. Huff, District 2; Donald J. Smith, District 3; Gerald L. Mowry and Richard H. O'Donnell, District 5; Richard R. Beach, District 6; Edward G. Campbell, District 7; Sigurd S. Daehnke, District 8; Charles R. Svoboda, District 9; Richard M. Glover, District 10; Warren E. Meyer, District 11; Vernon W. Filley, District 12; Wendale E. McAllaster, District 14; Galen W. Fields, District 17; Alex C. Mitchell, District 18. Also present were Mr. Jerry Slaughter and Mr. Oliver E. Ebel.

The Council re-elected Drs. Orville Clark and Richard Greer for another three-year term on the Editorial Board. Dr. David E. Gray was re-appointed to another year as Editor of the JOURNAL of the Kansas Medical Society.

The appointment of Dr. Vale Page as Chairman of KaMPAC Board of Trustees was approved by the Council. Mrs. Stewart Richards, of Wichita, was elected as the Auxiliary representative on the Board.

A contribution of $500 to the Educational Fund of KaMPAC was approved.

Dr. Collins reminded the assembly that a Councilor is a director in the Kansas Foundation, unless another Foundation board member is appointed within that Council district.

The Committee on Malpractice was authorized the expenditure of up to $1,500 on its study.

Medical-Legal Page

Failure to Diagnose Breast Cancer Held Negligent

In a medical malpractice action against a physician for failure to diagnose breast cancer in a 42-year-old woman, a California jury entered a verdict in the woman's favor of $150,000.

A biopsy had been performed to diagnose a lump which appeared in the woman's breast in 1963. It was a benign papilloma. Yearly visits to the doctor's office until 1967 were without incident.

The woman alleged that in 1967 she told the physician about a growth or lump in the area from which the biopsy had been taken in 1963. She said she brought this to his attention on several future occasions, and that the lump gradually grew. She stated that the physician had reassured her on each occasion that it was nothing and not to worry. The woman alleged that in 1970 the lump seemed to rapidly increase in size and that this was reported to the physician.

A biopsy in 1970 showed the tumor to be malignant. A radical mastectomy was performed, but metastasis had occurred. Some 15 months later metastatic involvement of the spine was confirmed. In 1972, a presumably malignant node was discovered in the liver while the woman was undergoing surgery for removal of the ovaries. The woman's life expectancy was said to be two to three years.

The physician denied that the woman had brought the lump in her breast to his attention in 1967. He stated he had found at that time a minor cystic engorgement in the woman's breast, which, he said, was entirely normal and unrelated to the cancer later discovered.

The physician stated that the woman did not periodically mention a lump in her breast after 1967. He said it was in 1970, when the woman became alarmed at the rapidly increasing size of a lump in her breast, that was the actual start of the tumor.

Medical testimony on the woman's behalf stated that the tumor was an ordinary, average, growing infiltrating ductal adenocarcinoma and had probably been present for at least two years. Other testimony was introduced to support the theory that the tumor was present for some time and slowly growing.

The woman alleged that the physician violated the accepted standard of care in failing to have a biopsy obtained on a lump that persisted over such a period of time.

Medical testimony on behalf of the physician was that the woman's cancer was of a highly virulent type, most likely not present for over three months prior to its discovery in 1970. This view was supported by testimony of the pathologist who made the original study of the cancer.

The physician contended that even under the best of conditions a survival rate of no higher than 25 per cent existed for this type of cancer.

Testimony for the woman was that, if the cancer was caught while localized, the survival rate was about 75 per cent.

After entry of the $150,000 verdict in the woman's favor, the physician made a motion for a new trial.—*Ko v. Arthur* (Cal.Super.Ct., Fresno Co., Docket No. 149122, 1972)

Negligence Not Proved in Failure To Diagnose Fracture

In an action to recover damages for a radiologist's failure to diagnose a fracture, the trial court did not err in granting a motion to exclude the evidence where the patient did not make out a prima facie case of negligence, the Alabama Supreme Court ruled.

The patient slipped and fell in her home. On the following morning she went to the hospital emergency room because of pain in her shoulder, arm, and wrist. She asked the nurse on duty to call her regular physician. Because X-rays could not be taken without a physician's authorization, a physician who had formerly treated the patient signed an order authorizing X-rays of the right forearm and shoulder.

Later the same day, the patient's own physician treated her, wrapping her wrist with an elastic bandage. She left the hospital after receiving some antipain pills.

Although she continued to suffer pain, the patient did not see her physician again until more than two weeks later. At that time he sent her back to the hospital for X-ray examination of the wrist. The X-ray revealed a fracture of the wrist.

The patient brought action against the hospital and the radiologist who took the X-rays for negligence in X-raying and treating her fractured wrist. She contended that the hospital was negligent in failing to advise the treating physician of her injury and its location or negligently failed to order X-rays of the site of the injury. As a result, she said, the X-ray department failed to X-ray the proper portion of her arm. The patient further contended that the

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radiologist negligently failed to interpret X-rays of her injury and to advise the treating physician of the possibility of fracture of her right wrist.

On appeal, the patient argued that the hospital did not comply with an order by her physician for an X-ray of her wrist. However, the court said that the only order for an X-ray on the day the patient first visited the hospital was for an X-ray of the right forearm and shoulder. The court said it was undisputed that the patient's arm and shoulder had already been X-rayed before the physician saw her and that he testified that he had seen no fractures on those X-rays. All X-rays were taken on the orders of a physician, and the court pointed out that a radiologist never treats a patient for a fracture.

There was undisputed testimony that the X-rays of the patient's arm and shoulder were good, plain, and not defective. In the pictures of the forearm, the wrist was at the outside edge, where X-rays are usually somewhat distorted. However, the physician was evidently satisfied and saw no fracture.

The court said that the measure of duty owed by a hospital to a patient is that degree of care, skill, and diligence used by hospitals in the community and by the express or implied contract of the undertaking. In a malpractice case, the court said that proof as to what is not proper treatment and procedure can be established only by expert medical evidence. Lack of such testimony results in lack of proof of negligence, which is essential to establish a case.

The court said that the patient introduced no evidence to support her allegations charging the hospital with either distinct acts of negligence or combined concurrent negligence that was the proximate cause of her injuries. The appellate court found that the trial court did not err in granting the hospital's motion to exclude the patient's evidence.

As to the radiologist, the patient charged that he failed to read the X-ray properly on the patient's first visit, failing to detect a fracture of her right wrist which was shown to be fractured in the X-rays taken at a later date. There was no evidence that the radiologist was ever told to read the first X-rays for a fracture of anything other than the right forearm and shoulder. His findings as to that area were correct.

On the patient's later visit, after X-rays of the wrist were taken, the radiologist made a notation under his findings on the order for X-rays of the forearm and shoulder pointing out an indefinite line across the radius just proximal to the wrist joint, with no angulation or displacement of the fragments recognized. The radiologist said that there was no fragmentation on the original X-ray. He said that the fracture probably occurred between the times of the two films.

The patient introduced in evidence a letter written by an orthopedic surgeon and testimony by two physicians, indicating that a fracture could not be conclusively diagnosed from the X-rays. Another radiologist testified that he could see part of a hairline fracture in the first X-ray. The physicians all agreed that the difference in the X-rays might have been caused by a fall between the times of taking the two sets of X-rays.

The court said that a physician was not liable for an honest mistake or error of judgment in making a diagnosis or prescribing a course of treatment where the proper course was subject to reasonable doubt. Assuming that a hairline fracture was visible in the distorted area of the first X-ray, the court said the worst that could be said of the radiologist's

(Continued on page 262)

KMS MEMBERSHIP DIRECTORY—1973

The 1973 Membership Directory will be printed in July. It would be helpful if you would check your listing in the 1972 directory. If the information is incorrect, or if you have recently become a member of the Kansas Medical Society and were not listed last year, please notify the Society office in Topeka.

Membership listings include: name, address, telephone number, year of birth, sex, medical school, year of license, specialty training, board certification, and specialty organization other than board certification attesting to clinical competence in accordance with guidelines adopted by the Kansas Medical Society.

Corrections or additions should be sent to the Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.

The D. C. Line

Editor's Note: The Editorial Board feels that the Kansas Medical Society would profit by maintaining contact with Representative Bill Roy, both as a source and interpreter of political activities on the national medical front. Accordingly, we are initiating a monthly column written by Dr. Roy. It is hoped that this will not only provide the service intended, but invite a response of readership either through the JOURNAL or to Dr. Roy directly.

In April, I visited Ottawa, Canada, for a briefing by government officials, members of Parliament, ministers, and physicians on national health insurance as it presently operates in our neighbor country to the north. This was part of a quarterly interparliamentary program to compare mutual problems and programs. Three members of the Ways and Means Committee and one other member of the Health Subcommittee also attended.

State-Federal Health Insurance

Hospital, physician and a number of other medical services are paid for by the government in Canada. The programs are administered by the ten individual provinces (states) and two territories which are constitutionally responsible for health care. The federal government participates by its power of the purse. It provides conditional grant programs, which simply means that if the provinces meet the conditions, they get the money. The federal contribution averages 50 per cent of program costs. So it is not unexpected that in a very few months every province "opted in" for hospital coverage established in 1958, and for physician services coverage in 1968.

The federal government requires the provision of defined basic benefits in return for federal grant support. The provinces may provide additional optional benefits, some of which will qualify for federal matching monies. Hospitals may not make a profit on basic benefits, but may charge for a private room or television and make a profit on these services. The government does not own or operate the hospitals. After 15 years of universal hospital insurance, 95 per cent of hospital care is provided by voluntary hospitals.

The Canadian government discontinued sharing costs of capital improvements (the equivalent of our Hill-Burton program) five years ago. It is now regarded as entirely a provincial responsibility.

Canada is presently considered overbedded, with seven beds per 1,000 population (U. S. has five: 1,000). The average hospital stay exceeds our average stay by about two days.

Physician Services Included

The government began paying for physicians' services in 1968 and the program is called Medicare. There are four basic criteria for this coverage: (1) coverage must be comprehensive, but will be paid for only if it is "medically needed"; (2) coverage must be available to the entire eligible population, and there can be no differential premium charge; (3) benefits must be portable, *i.e.* paid for interprovincially and on trips anywhere in the world; and (4) the program must be operated on a nonprofit basis by one publicly accountable authority in each province.

It is noteworthy that the Canadians *have not* used private health insurance companies to provide their national health insurance.

No deductibles or co-insurance are permitted. Co-payments (*e.g.*, a small payment for each office visit) are permitted, but generally have not been used because of the administrative expense and because it is not believed to be effective in decreasing utilization. An extensive experiment with co-payments in Saskatchewan was discontinued last year.

The provincial financing of the program varies from province to province. Three provinces have a premium system to raise their share of the money. Others rely on a variety of taxes.

Next month, I will continue this discussion of the Canadian system, with a special look at the status of the Canadian physician.—*W.R.R.*

Letters to VOX DOX should be addressed to the Vox Dox Editor, Journal of the Kansas Medical Society, 1300 Topeka Avenue, Topeka, Kansas 66612.

Medical-Legal Page

(Continued from page 260)

report was that he made an honest mistake of judgment on a matter subject to reasonable doubt. The court found that there was no evidence that the radiologist did not exercise the degree of care, skill, and diligence used by physicians in the same field of practice in the same area.

Where there was no proof as to breach of duty by the radiologist, the court found that the patient failed to make out a prima facie case of negligence and was not entitled to have the evidence submitted to the jury. Finding that the trial court did not err in granting the motion to exclude the evidence as to the radiologist, the supreme court affirmed the judgment of the trial court.—*Underwood v. Holy Name of Jesus Hospital,* 266 So.2d 773 (Ala.Sup. Ct., Aug. 17, 1972; rehearing denied, Sept. 28, 1972)

SUPPORT OF EPSDT

The American Academy of Pediatrics' Executive Board has urged local chapters to assist states in the development of programs for Early and Periodic Screening, Diagnosis and Treatment (EPSDT) as outlined in the Title XIX amendments of the Social Security Act. In a commentary appearing in *Pediatrics,* the Academy's monthly scientific journal, the Board called EPSDT "one of the most significant pieces of federal legislation concerned with the health of children."

According to the amendments, states must provide certain preventive health services to all Medicaid recipients under 21 years of age, beginning July 1, 1973.

While urging state AAP chapters to participate in the formation of EPSDT programs, the Board noted that the legislation has "created a paradox."

The legislation requires that a large segment of the child and youth population, who in the past have received limited medical care, will now receive increased health services. However, the legislation does not offer solutions to the problems of providing these services.

In spite of these and many other complexities, the Academy is obligated to take a positive position concerning Early and Periodic Screening, Diagnosis, and Treatment, the Board said. The Board urged local chapters to appoint special committees to deal with EPSDT programs. A national AAP committee has already been appointed to meet with the Commissioner of the Medical Services Administration in an advisory capacity.

Information for Authors

Manuscript Preparation

Manuscripts must be typewritten, double spaced, leaving wide margins. Submit the original, plus one copy if possible.

Titles should be short, specific, and amenable to indexing. A subtitle is frequently used to keep the main title short.

Summary: All manuscripts should include a short abstract which is a factual (not descriptive) summary of the work.

Author Responsibility: The author is responsible for all statements made in his work, including changes made by the copy editor. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication. Publication elsewhere will be subsequently authorized at the discretion of the Editor.

Galley Proof: To make extensive changes in the article after the text has been set in type may require an additional cost which exceeds the original. The galley proof is for correction of ERRORS, and a rewriting of the article should be done on the original copy BEFORE it is submitted for publication.

Drugs should be called by their generic names; the trade names can be added in parentheses if they are considered important. All *units of measure* must be given in the metric system.

References

Bibliographic references should not exceed 20 in number, documenting key publications. Personal communications and unpublished data should not be included. References should be arranged according to the order of citation, and not alphabetically. All references must be numbered consecutively and all must be cited in the text. Use the style of the AMA publications, giving: name of author, title of article, name of periodical, volume, pages, year.

Illustrations

All material which cannot be set in type, such as photographs, line drawings, graphs, charts, tracings (for preparation of tables, see below) must be mounted on white cardboard. All must be identified on the back as to figure number, author's name, and an arrow indicating top. Legends should be typed double spaced on a separate sheet of paper, limited to a maximum of 30 words.

Drawings and graphs should be done professionally in India ink on illustration board or high grade white drawing paper.

Photographic material should be submitted in duplicate as high-contrast, glossy prints. Color illustrations will be accepted for publication only if the author assumes the cost.

THE JOURNAL will assume the cost of B/W engravings and cuts up to $35 (or 5 cuts). Engraving cost for illustrations in excess of $35 will be billed to the author.

Tables

Because tables are set by hand, their cost is comparable to illustrations. A reasonable number of tables are allowed without cost to the author.

Tables should be self-explanatory and should supplement, not duplicate, the text. Since the purpose of a table is to compare or classify related items, the data must be logically and clearly organized. The relationship and comparison are established by the correct choice of column heads (captions of vertical columns) and stubs (left entries in horizontal listings).

Each table should be typed double spaced, including all headings, on separate sheets of lettersize paper. Oversize paper should not be used. Instead, repeat heads and stubs on a second sheet for tables requiring extra width. Number tables consecutively. Each table must have a title.

Reprints

A reprint order form with a table covering cost will be sent with the galley proof to each contributor. Since the JOURNAL has no way to provide for reprints, they must be ordered by the author and purchased directly from the printer.

Woman's Auxiliary

Annie Brags About All KMS Annies

When the state Auxiliary President chose "It's Your Red Wagon, Keep It Rolling Along" for her theme this year, she really didn't have any idea that the red wagon would turn out to be a big yellow Health Education Resources van. Neither did she have any idea of the degree of enthusiasm and response that would come from Auxiliary members over the state for all the proposed projects, although she should have, because these women always do come through beautifully with their help.

In fact, they've come through so well in all Auxiliary areas that Annie just can't help crowing a bit about them, even ignoring her mother's sage advice that "whistling girls and crowing hens always come to some bad ends. . . ." Those auxilians have been keeping all the red wagons rolling along so well that Annie just has to brag about them.

For instance: you know of course that we had five regional workshops out in the state last fall. Attendees were enthusiastic and information was taken back to counties and used, if county reports for the year are any indication. Report after report from county presidents and state chairmen indicate success in projects such as the following.

Nineteen counties participated in some type of a mental health program, either as an Auxiliary group or as Auxiliary members who helped individually. Douglas County has a very special "Good Cheer Group" that visits a nursing home and has a party a month. This project was such a success that it was written up in *Md's wife*. Johnson County had a social event (a dinner/theater thing) and funds from this were donated to help with the "TLC" (Temporary Locations for Children) home in Olathe . . . something that was needed badly. Southwest counties had what they called the "X-Rated Follies" and contributed $8,400 to a radiation therapy center.

Fantastic things were done by your wives. Every Auxiliary had some worthwhile project and some of them had several. Nearly all of them had social affairs of one kind or another to add fun to the work.

At the state level several new programs were initiated. The Health Education Resources van was finished and put on the road for the three spring months. Annie wasn't sure we wouldn't have to add pontoons and an outboard motor to use it, but nevertheless it is on the road and going and in demand for next fall.

The legislative committee has a new "first" . . . a member on the Kansas Medical Society legislative committee. Our chairman or her co-chairman attended all of the weekly meetings in Topeka while the Kansas legislature was in session. They also assisted with a LEGS Line-Alert three times, one for the national Auxiliary backing the AMA's position on Senator Kennedy's HMO bill S14, and twice for the Kansas Medical Society to promote their position on two bills at the state level.

The International Health Activities committee reports 439 barrels of medical supplies and other items sent to World Medical Relief and Project Concern. In case you wonder how many pounds that is, they estimate over 22,000. That's a lot of stuff. They also shipped two x-rays and an EKG machine, and sent $759 in cash collected from coupons, aluminum, and penny-a-meal projects. AMA-ERF came through with $16,002 as of April 1, with more to be added before the year is over. A check for more than $18,000 was given Dr. William O. Rieke at the convention. This included our share of undesignated funds from other states.

Something new was added at the convention too . . . a scientific session. Dr. Tom Kendall, a Wichita plastic surgeon, spoke on reconstructive surgery for women. Blackbear Bosin, an Indian artist, spoke on "From Medicine Man to Modern Medicine." Women don't always want fashion shows, believe it or not!

Our auxilians just plain outdid themselves in every area all year. Topeka trained 157 GEMS (that's Good Emergency Mothers, or trained babysitters to you uninitiated) and Halstead trained 17. Several counties helped with blood donor programs. One instituted a block mother program . . . the list is endless.

When the State Board of Health called for assistance to promote the April VD Awareness Month, all county presidents jumped in to alert the news media in their areas and to promote programs.

Yes, this certainly was the year when the Red Wagon rolled along . . . everyone pulling to do their share. And the big yellow van finally rolled too, when we got it all fixed up. You can be proud of your wives, they did a wonderful job this year for you, your communities, and your Auxiliary.

Gratefully yours,

Auxiliary Annie

The Kansas Medical Society—1973-1974

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